SECTION 2A

Hospital inpatient and outpatient services

RECOMMENDATION

The Congress should increase payment rates for the acute inpatient and outpatient prospective payment systems in 2007 by the projected increase in the hospital market basket index less half of the Commission's expectation for productivity growth.

COMMISSIONER VOTES: YES 15 • NO 0 • NOT VOTING 0 • ABSENT 2

SECTION 2A

Hospital inpatient and outpatient services

Section summary

Each year, the Medicare Payment Advisory Commission makes payment update recommendations for hospital inpatient and outpatient services for the coming year. We first address whether base payments for the current year (fiscal year 2006) are adequate, considering:

- beneficiaries' access to care and changes in hospital capacity,
- changes in the volume of services,
- changes in the quality of care,
- hospitals' access to capital, and
- Medicare payments and hospitals' costs.

More hospitals have joined Medicare than have left the program in recent years, and the number of facilities ceasing participation in Medicare each year has dropped by half. The share of hospitals offering most specialized services (such as burn care and cardiac catheterization) has increased, while the share offering outpatient services has remained stable.

Both inpatient and outpatient volume are increasing. Medicare's acute inpatient discharges have roughly kept pace with beneficiary enrollment

In this section

growth in recent years, while length of stay continues to decline. The growth in outpatient services moderated in 2004, although it remains about 4 percentage points above the rate of growth in Medicare enrollment.

The evidence on the quality of care hospitals provide to Medicare beneficiaries is mixed. Mortality rates have dropped while CMS's indicators of clinical effectiveness and appropriateness of care have improved. But the results for adverse events are mixed—the rates are increasing for some measures and decreasing for others.

Spending on hospital construction has increased substantially in recent years, and more than 85 percent of nonprofit hospitals plan to add capacity over the next two years. The number of upgrades in bond ratings exceeded the number of downgrades in the first half of 2005 for the first time since 1998, and the dollar amount of upgrades far exceeded that of downgrades. While some are concerned about a divergence in access to capital between "haves" and "have nots," evidence has emerged that the disparity in access to capital has lessened.

The increase in Medicare's inpatient costs per discharge was unusually large in 2002 and 2003, but moderated somewhat in 2004. A measure of per unit costs across all services and all payers shows a similar pattern of high but slowing growth through 2004, and preliminary evidence suggests a further decline in 2005. Outpatient cost growth, however, has been very low—about 1 percent—in each of the last two years.

Several factors affected the rate of hospitals' cost growth in the early 2000s, including rapidly rising malpractice insurance expenses and pressure to increase nursing wages and staffing levels arising from nurse shortages and quality of care concerns. But the increases were also influenced by a lack of fiscal pressure from the private sector. Pressure from private payers has been much lower since 1999 than in the preceding years as hospitals regained the upper hand in price negotiations, and hospitals' costs rose faster than at any time since the late 1980s when private insurers also exerted little pressure.

The overall Medicare margin for hospitals covered by prospective payment fell from –1.4 percent in 2003 to –3.0 percent in 2004; however, we expect the margin to be –2.2 percent in 2006 (reflecting 2007 policy other than payment updates). After responding to evidence that some hospitals abused Medicare's outlier payment system, CMS's projection of the appropriate threshold for determining outlier payments in 2004 resulted in these payments falling below the target of 5.1 percent of inpatient base payments. Our forecast is dependent on CMS returning outliers to the 5.1 percent level, and we urge the agency to review its projection methods to ensure that the threshold needed to reach that level is implemented for 2007.

Several provisions of the Deficit Reduction Act of 2005 affect hospitals. We estimate that in aggregate, these provisions will have a small positive effect on Medicare's payments to hospitals—not enough to change our projection of the 2006 overall Medicare margin.

High-cost hospitals have a significant effect on the industry's financial performance under Medicare. To illustrate this effect, if we omit from the calculation the roughly one-fifth of prospective payment system (PPS) hospitals with consistently high costs (specifically, those in the top one-third highest-cost hospitals in both 2002 and 2004), our margin forecast rises by more than 2 percentage points to about the breakeven point. In addition, we found that the PPS hospitals with consistently negative Medicare margins had above-average costs and cost growth and are not competitive in their own markets as evidenced by having higher costs and lower occupancy than neighboring competitors.

Our indicators of payment adequacy present a mixed picture. Our assessments of beneficiaries' access to care, volume growth, and access to capital are positive, while the results on quality are mixed. The Commission is concerned about the trend in Medicare margins because in the long run hospitals need to generate funds for investing in their infrastructure. However, our general approach is to make enough funding available in aggregate to cover the costs of efficient providers, and our analysis suggests

that more efficient hospitals may not be performing as poorly as the industry's aggregate margin would suggest.

Balancing these considerations, we conclude that an update of market basket minus half of the Commission's expectation for productivity growth (or 0.45 percent) is appropriate for both inpatient and outpatient services. Under the current forecast of the hospital market basket, this will provide updates of about 3 percent. These updates should be combined with a quality incentive payment policy for hospitals, as we recommended last year (MedPAC 2005b). Implementing pay for performance will increase payments to hospitals with better-than-average quality scores and improve the "business case" for hospitals to adopt information technology.

Recommendation 2A

COMMISSIONER VOTES:
YES 15 • NO 0 • NOT VOTING 0 • ABSENT 2

The Congress should increase payment rates for the acute inpatient and outpatient prospective payment systems in 2007 by the projected increase in the hospital market basket index less half of the Commission's expectation for productivity growth.

Hold-harmless payments for the outpatient services provided by many rural facilities were scheduled to expire at the end of 2005. The effects of this change, however, were substantially reduced by policy changes implemented by CMS in late 2005 and by the Congress in the Deficit Reduction Act of 2005. But these policies do not directly address the underlying reasons for the relatively poor financial performance of rural hospitals under the outpatient PPS. Using regression analysis, we found that outpatient costs per service decrease as hospital volume increases, with rural hospitals comprising most of those with below-average volume. A low-volume adjustment to Medicare's outpatient payment rates for rural hospitals that are important for access to care, as evidenced by their location more than a specified number of miles from another outpatient provider, could target assistance for rural hospitals better than the current payment adjustments. ■

Background

Hospitals provide Medicare beneficiaries with inpatient care for the diagnosis and treatment of acute conditions and manifestations of chronic conditions. They also provide ambulatory care through outpatient departments and emergency rooms. In addition, many hospitals provide home health, skilled nursing facility (SNF), psychiatric, or rehabilitation services. Medicare purchases inpatient and outpatient care, as well as other services, from short-term general and specialty hospitals that meet its conditions of participation and agree to accept the program's payment rates.

Medicare spending on hospitals

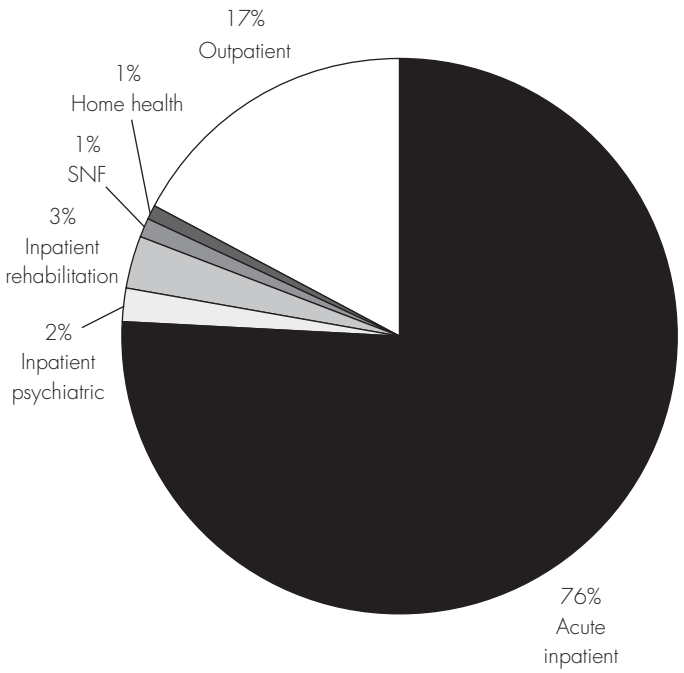
The bulk of Medicare spending on hospitals is for acute inpatient and outpatient care. Payments for acute inpatient care account for about three-quarters of all Medicare payments to hospitals covered by the acute inpatient prospective payment system (PPS), while payments for outpatient care (including services paid for outside the outpatient PPS) make up about 17 percent (Figure 2A-1).[1]

Spending by the Medicare program for all inpatient and outpatient care—encompassing hospitals paid under all of Medicare's PPSs as well as critical access hospitals (CAHs)—increased from about $84 billion in calendar year 1994 to $133 billion in 2004 (Figure 2A-2, p. 48). Spending growth averaged 4.8 percent during the decade, but was not uniform. From 1994 to 1997, Medicare hospital program expenditures grew 5.8 percent per year. Expenditures were nearly flat for three years after enactment of the Balanced Budget Act of 1997 (BBA), and then spending growth accelerated to 11 percent per year in 2001 and 2002 before slowing to 5.4 percent in 2003 and 7.8 percent in 2004.

Looking forward, CMS's Office of the Actuary (OACT) projects that hospital payments will increase at an annual rate of 4.0 percent from fiscal year 2005 to 2015 (Office of the Actuary 2005). The Medicare trustees forecast that expenditure growth for the Part A trust fund will slow in calendar years 2006 and 2007 because of expected enrollment increases in Medicare Advantage (MA) plans (Boards of Trustees 2005). This trend will shift payment responsibility from the Medicare program to MA plans but should have little overall effect on the payments hospitals receive for treating Medicare beneficiaries.

FIGURE 2A–1

Acute inpatient services accounted for most of Medicare's payments to hospitals in 2004



Note: SNF (skilled nursing facility). Data are for hospitals covered by the Medicare acute inpatient prospective payment system. Data exclude graduate medical education as well as several services that account for smaller shares of payment, such as hospice and ambulance services.

Source: MedPAC analysis of Medicare Cost Report file from CMS.

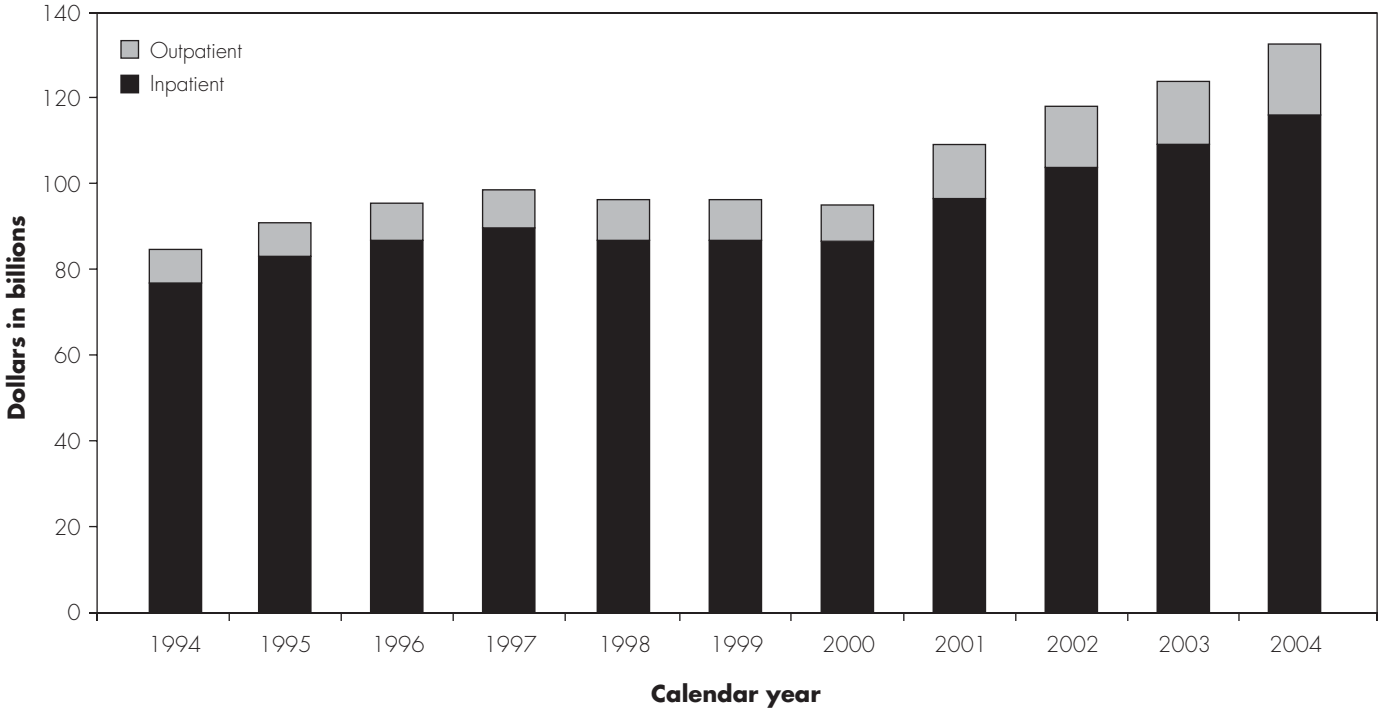
Medicare's payment system for inpatient and outpatient services

This section provides a brief overview of the inpatient and outpatient PPSs. These payment systems have a similar basic construct (a base rate modified for differences in type of case or service as well as geographic differences in wages) but somewhat different sets of additional payment adjustments. Additional information on these payment systems is available at www.cms.hhs.gov and at www.medpac.gov.[2]

Acute inpatient payment system

Medicare's acute inpatient PPS pays hospitals a predetermined amount per hospital discharge, with separate payments made to cover hospitals' operating and capital expenses. The diagnosis related group (DRG) classification system sorts patients into more than 500 groups, which aggregate cases with related clinical problems and similar costs.

FIGURE 2A–2 **Growth in Medicare payments for hospital inpatient and outpatient services continues**



Note: Includes all Medicare participating hospitals. Includes acute inpatient services covered by the prospective payment system (PPS); critical access hospitals; other inpatient services (psychiatric, cancer, children's, rehabilitation, and long-term care hospitals); outpatient services covered by PPS; and other outpatient services. Payments include program outlays.

Source: 2005 annual report of the Boards of Trustees of the Medicare trust funds.

Each DRG has a relative weight based on how charges for cases in the group compare with the national average of all groups. The base payment rate reflects the average costliness of Medicare inpatient cases nationwide, and the DRG payment rate is the product of this rate and the relative weight of the DRG. The labor portion of the DRG payment rate is further adjusted by the hospital wage index to account for differences in local input prices.

The inpatient PPS makes additional adjustments to payments for certain cases and to hospitals with specific characteristics:

- supplemental outlier payments for cases with unusually high costs relative to the payment rate for the DRG;
- reduced payments for cases with shorter than average stays that are transferred to another hospital or a post-acute care setting;
- add-on payments for the costs of major new technologies used in acute inpatient care;
- an indirect medical education adjustment to account for the higher patient care costs of teaching hospitals;
- a disproportionate share (DSH) adjustment to provide additional payment to hospitals that treat an unusually large share of low-income patients;
- options for higher payments for hospitals (mostly rural) that qualify as sole community providers, referral centers, or small Medicare-dependent hospitals; and
- a low-volume adjustment for rural hospitals treating fewer than 200 admissions per year from all payment sources.

In a 2005 report to the Congress on physician-owned specialty hospitals, the Commission recommended several improvements to the hospital inpatient PPS (MedPAC 2005a). These included:

- refining the current DRGs to capture differences in severity of illness among patients more fully,
- basing the DRG relative weights on the estimated cost of providing care rather than on charges,
- basing the weights on the national average of hospitals' relative values in each DRG, and
- adjusting the weights to account for differences in the prevalence of high cost outlier cases.

Taken together, these policy recommendations would redistribute Medicare payments to more closely reflect the relative cost of care of inpatient cases, while retaining strong incentives for efficiency in the hospital inpatient PPS. Although these changes would not affect aggregate payments across all hospitals, they would reduce the potential for hospitals to specialize in profitable types of patients or select low-cost patients within a DRG.

Since 1997, certain small rural hospitals with 25 or fewer beds can qualify as critical access hospitals. These hospitals are excluded from Medicare's acute inpatient and outpatient PPSs. Instead of predetermined payment rates, they receive cost-based reimbursement (costs plus 1 percent) for both inpatient and outpatient services, and we do not consider them when evaluating the adequacy of Medicare's prospective payments. There were 1,217 CAHs as of January 2006 with 10 to 30 more waiting for approval (Eddinger 2006). More information on CAHs is available at www.medpac.gov.

Beneficiaries are liable for a hospital deductible of $952 when admitted to a hospital in 2006. The Part A deductible is the beneficiary's only cost for up to 60 days of Medicare-covered inpatient hospital care in a benefit period. Beneficiaries must pay an additional $238 per day for days 61 through 90, and $476 per day for hospital stays beyond the 90th day in a benefit period.

Hospital outpatient payment system

The outpatient PPS pays hospitals a predetermined amount per service. CMS assigns each outpatient service to one of approximately 850 ambulatory payment classification (APC) groups. The APCs cover everything from simple X-rays and clinic visits to cataract surgeries and insertion of pacemakers. Each APC has a relative weight based on its median cost of service compared with the median cost of a mid-level clinic visit, and a conversion factor translates relative weights into dollar payment amounts. The outpatient PPS adjusts the labor portion of payment by the hospital wage index to reflect differences in local input prices. The outpatient PPS includes four special provisions to adjust payments:

- pass-through payments for new technologies when providers use certain drugs, biologicals, and devices;
- outlier payments for individual services or procedures with unusually high costs relative to the payment rate for the APC;
- hold-harmless payments to cancer and children's hospitals if their outpatient PPS payments are lower than they would have been under prior policy; and
- additional payments of 7.1 percent to each service provided by sole community hospitals located in rural areas, except for drugs, biologicals, and pass-through services.

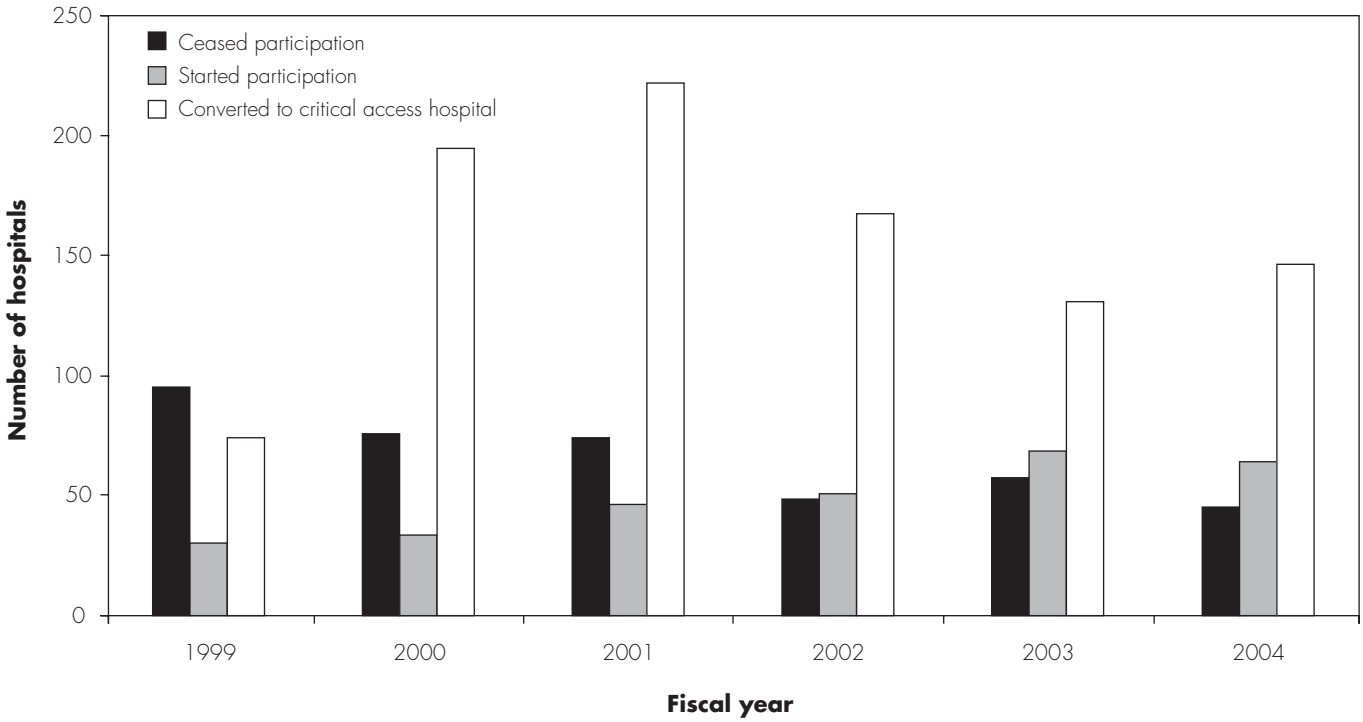
Under the outpatient PPS, beneficiaries must meet the deductible that applies to all Part B services ($124 in 2006) and also pay a pre-specified coinsurance for each service. In 2004, beneficiary coinsurance accounted for 34 percent of total payments under the outpatient PPS, but the BBA established a system for reducing beneficiaries' coinsurance share over time until it reaches 20 percent.

Are Medicare payments adequate in 2006?

Each year, the Commission makes payment update recommendations for hospital inpatient and outpatient services for the coming year. In our framework we address whether payments for the current year (2006) are adequate to cover the costs incurred by efficient hospitals, and then determine how much efficient providers' costs should change in the coming year (2007). Our determination of payment adequacy considers beneficiaries' access to care, changes in the volume of services, changes in the quality of care, hospitals' access to capital, and the relationship of Medicare's payments and providers' costs. In addition, the Medicare Prescription Drug, Improvement, and Modernization Act of 2003 (MMA) requires that we consider the efficient provision of services in making update recommendations. We therefore consider the

FIGURE 2A–3

More hospitals have begun than ceased participation since 2001, while many have become critical access hospitals



Source: MedPAC analysis of Provider of Services file from CMS.

appropriateness of hospitals' costs in assessing payment adequacy—that is, whether actual costs provide a reasonable representation of efficient hospitals' costs.

Beneficiaries' access to care and supply of providers

We assess beneficiaries' access to care through measures of the number of hospitals participating in the Medicare program, including critical access hospitals in rural areas, and the proportion of hospitals offering certain specialty and outpatient services. We found no indication of significant change in hospitals' capacity to provide services to Medicare beneficiaries.

In each year since 2002, more hospitals have joined the Medicare program than have ceased participation. In 2004, 61 hospitals joined the Medicare program and 44 dropped out, for a net gain of 17 (Figure 2A-3). One-third of the new participants identified themselves by name as a specialty hospital (surgical, heart, orthopedic, or women's hospital). The annual number of facilities ceasing participation in the Medicare program dropped from 93 in 1999 to 44 in 2004.

Eight hospitals dropping out of Medicare in 2004 were located in rural areas and 36 in urban areas. On average, the closing facilities operated at only 38 percent occupancy in their last year of operation and were located only 11 miles from the nearest other hospital covered by the acute inpatient PPS. Thus, closures likely did not have serious implications for beneficiaries' access to care in surrounding communities.

In addition to those leaving Medicare altogether, nearly a thousand rural hospitals converted to CAH status between 1998 and 2004. These hospitals are no longer paid under the acute inpatient and outpatient PPSs but are still available to provide care to beneficiaries. In 2004, 145 facilities became CAHs.

We examined a set of 11 specialized services and found that the share of hospitals offering all but one increased from 1998 to 2003 (Table 2A-1). The proportion offering trauma center services (level 1, 2, or 3) grew from

TABLE 2A–1

The share of hospitals offering most specialized services has grown

Service	1998	2000	2003
Neonatal intensive care	19%	19%	21%
Burn care	3	3	5
Transplant services	6	9	8
Open heart surgery	20	22	22
Trauma center (level 1–3)	26	33	33
Cardiac catheterization	37	38	38
Angioplasty	24	26	28
Hemodialysis	N/A	22	29
Psychiatric services	50	49	46
Radiation therapy	26	28	27
MRI	50	55	58

Note: N/A (not available). Includes services provided directly by community hospitals.

Source: American Hospital Association annual survey of hospitals.

26 percent to 33 percent, and the proportion offering burn care increased from 3 percent to 5 percent, even though trauma center and burn care services are often considered unprofitable for hospitals. The largest change was in magnetic resonance imaging (MRI) services, which increased from 50 percent to 58 percent. The only specialized service to decline in proportion over this period was psychiatric services, falling from 50 percent to 46 percent of acute care hospitals.

The percentage of hospitals offering outpatient and emergency services has been fairly stable (Table 2A-2). A small increase in the share of hospitals providing outpatient care followed the introduction of the outpatient PPS in August 2000. The only notable change since 2001

TABLE 2A–2

The share of hospitals offering outpatient services has remained stable

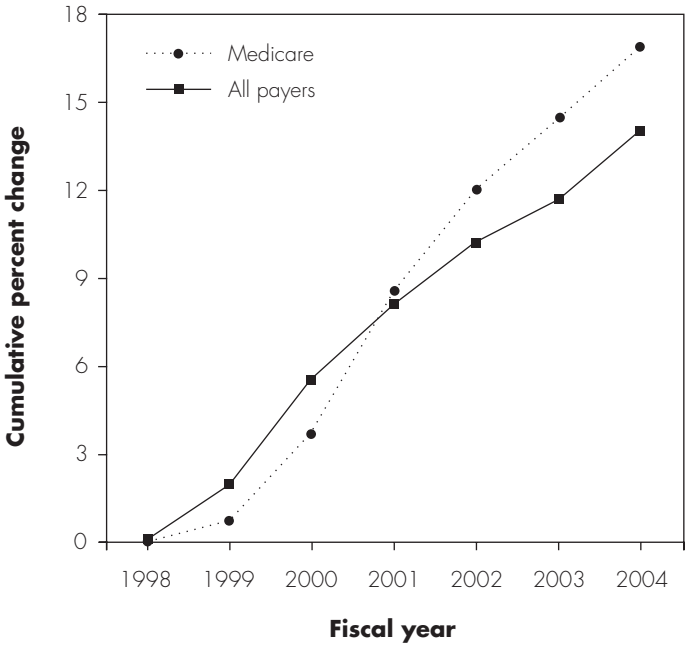
Service	1997	2001	2002	2003
Outpatient services	93%	94%	94%	94%
Outpatient surgery	81	84	86	86
Emergency services	92	93	93	92

Note: Includes services provided or arranged by short-term hospitals, excluding critical access hospitals.

Source: Provider of Services file from CMS.

FIGURE 2A–4

Hospital discharges continued to grow through 2004



Note: Data are for hospitals covered by the Medicare acute inpatient prospective payment system.

Source: Medicare Cost Report file from CMS.

was a small increase in the percentage of hospitals offering outpatient surgery.

Changes in volume of services

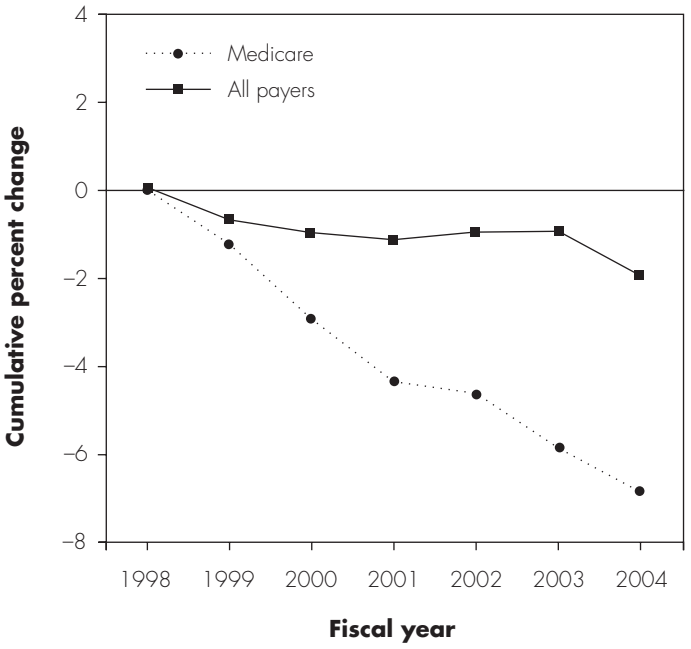
Both inpatient and outpatient volume have increased in recent years, with particularly strong growth on the outpatient side. We use number of discharges and average length of stay as indicators of inpatient volume, while we measure outpatient volume by number of services.

Inpatient volume

The number of discharges, whether calculated for Medicare or all payers (which includes Medicare), increased every year from 1998 through 2004 (Figure 2A-4). Medicare discharges grew more rapidly than fee-for-service enrollment from 1999 to 2002, and since then have roughly kept pace with enrollment growth. In 2001 and 2002, a substantial portion of the measured increase in fee-for-service discharges resulted from beneficiaries' decisions to leave Medicare+Choice plans and return to traditional Medicare. From 2000 to 2003, the average annual growth rates for Medicare discharges exceeded

FIGURE 2A–5

Hospital length of stay continued to decline through 2004



Note: Data are for hospitals covered by the Medicare acute inpatient prospective payment system.

Source: Medicare Cost Report file from CMS.

those for all payers, but the two measures showed identical growth of 2.1 percent in 2004. Results from a quarterly hospital survey of approximately 580 hospitals indicate that both all payer and Medicare discharges continued to increase in the four quarters ending in March 2005.[3]

The average length of stay for Medicare patients fell more than 30 percent during the 1990s, with annual declines exceeding 5 percent from 1993 through 1996. The rate of decline then slowed to 1.1 percent in 2004 (Figure 2A-5). The drop in length of stay has been greater for Medicare than for all payers in every year since 1999, but in 2004 the gap in rate of decline narrowed to only a tenth of one percent.

The case-mix index (CMI) for Medicare inpatient services provided by acute care hospitals decreased slightly from 1998 through 2001, in part due to changes in hospital coding (MedPAC 2001). Since then, the CMI has registered increases of 1.0 percent in 2002, 0.6 percent in 2003, and 0.4 percent in 2004. In Medicare's per case payment system, case-mix increases result in proportionate increases in payment.

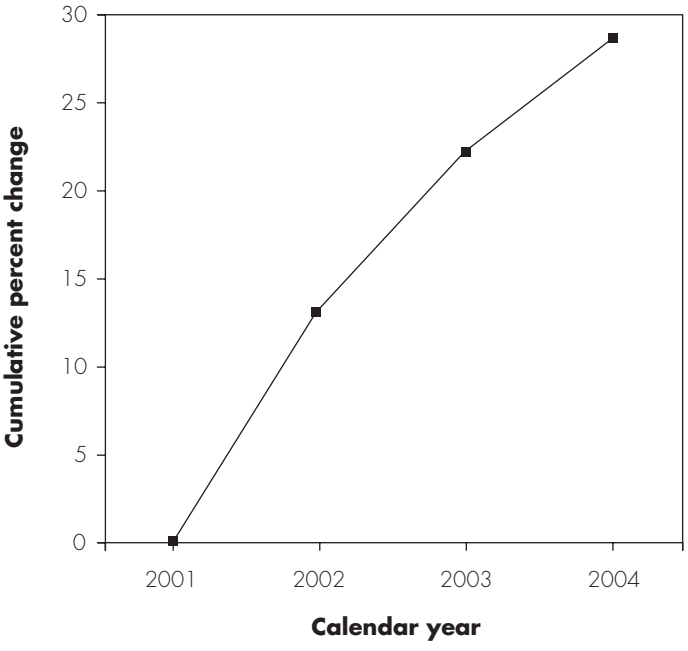
Outpatient volume

We measure the volume of outpatient care as the number of services provided because the outpatient PPS generally pays for individual services.[4] Volume has grown rapidly since 2001—the first full year of the PPS—but the rate of increase has slowed (Figure 2A-6). Analysis of claims data indicates that volume increased by 12.7 percent in 2002, 8.3 percent in 2003, and 5.3 percent in 2004. Our analysis excludes separately paid drugs and pass-through devices.[5]

Much of the volume growth in 2003 and 2004 resulted from increases in the number of services per beneficiary receiving services, rather than increases in the number of beneficiaries served. Volume per beneficiary accounted for 64 percent of the growth in 2003 and 73 percent of the growth in 2004. In both years, the remaining volume growth was consistent with enrollment growth in fee-for-service Medicare. Very little growth was due to a greater percentage of beneficiaries receiving any outpatient service.

FIGURE 2A–6

Annual growth in the number of Medicare outpatient services has slowed, but is still strong



Note: Data are for hospitals covered by the Medicare outpatient prospective payment system.

Source: Hospital outpatient claims data from CMS.

TABLE 2A–3 **Procedures contributing most to the increase in service-mix index, 2002–2004**

APC	Title	Relative weight	Percent change in volume
0339	Observation	6.7	205.9%
0108	Insertion/replacement/repair of cardioverter-defibrillator leads	452.7	77.5
0107	Insertion of cardioverter-defibrillator	337.1	74.6
0337	MRI/MRA without contrast material followed with contrast	9.2	35.5
0162	Level III cystourethroscopy and other genitourinary procedures	21.9	41.4
0229	Transcatheter placement of intravascular shunts	62.0	38.6
0032	Insertion of central venous/arterial catheter	11.5	69.1
0283	CT with contrast material	4.7	18.2
0612	High-level emergency visits	4.1	26.8
	Overall average	2.8	14.1

Note: APC (ambulatory payment classification), MRI (magnetic resonance imaging), MRA (magnetic resonance angiography), CT (computed tomography).

Source: MedPAC analysis of outpatient claims files from CMS.

While the rate of volume growth has been declining, the annual change in the service-mix index—the average of the relative weights of the services provided—has been fairly stable. The service-mix index increased by 1.3 percent in 2002, 1.7 percent in 2003, and 1.5 percent in 2004.

The services that contributed most to the increase in the service-mix index had high relative weights (which measure the resources necessary to furnish the service relative to the national average) and large increases in volume (Table 2A-3).

Growth in the volume of observation services was especially strong, increasing by 206 percent from 2002 to 2004. This rapid growth may be due to at least two factors. First, observation services became a separately payable service category in the outpatient PPS in 2002. Hospitals had to record the following information on each bill in order to receive separate payment for observation services: indication of an emergency department visit or clinic visit, specific diagnostic tests, and specific conditions. The volume of observation services may have increased as hospitals improved their understanding of which patients qualify for separately payable observation services and became more proficient at recording the appropriate information. Second, in 2003 CMS began allowing for admission to separately payable observation service after a physician office visit without an emergency department or clinic visit, provided the hospital codes the appropriate reason for admission.

Changes in quality of care

Trends in the quality of care hospitals provide to Medicare beneficiaries show a mixed picture. Mortality rates have dropped and CMS's indicators of clinical effectiveness and appropriateness of care show improvement. But the rates of adverse events have generally increased. We discuss each of these indicators below.

Our measures of mortality and adverse events were developed by the Agency for Healthcare Research and Quality (AHRQ). To assess safety in hospitals, we examined in-hospital mortality and mortality 30 days after admission to the hospital, as well as the incidence of potentially preventable adverse events resulting from inpatient care. AHRQ chose these indicators after an extensive literature review, discussions with clinical and measurement experts, and empirical testing to explore the frequency and variation of the indicators and their potential biases.

We calculated the mortality and patient safety indicators from Medicare administrative data. We examined all Medicare inpatient claims with specified conditions or procedures using CMS's MedPAR file, and risk adjusted the data sets using an AHRQ methodology.

Both in-hospital and 30-day mortality declined from 1998 to 2004 for each of the eight conditions or procedures we measured. In-hospital mortality rates for coronary artery bypass graft, congestive heart failure, gastrointestinal hemorrhage, acute myocardial infarction, and pneumonia

TABLE 2A–4 **Patient safety indicators show mixed changes from 1998 to 2004**

Indicator	Change in rate 1998 to 2004	Events 2004
Decubitus ulcer	+	157,000
Failure to rescue	–	67,100
Postoperative PE or DVT	+	42,100
Puncture/laceration	+	38,300
Infection due to care	+	32,400
Postoperative respiratory failure	+	10,900
Postoperative sepsis	+	8,600
Postoperative hemorrhage	–	7,400

Note: PE (pulmonary embolism), DVT (deep vein thrombosis). Measures are risk-adjusted rates per eligible discharge. A minus sign means rates decreased, indicating an improvement. A plus sign means rates increased.

Source: MedPAC analysis of CMS data using an Agency for Healthcare Research and Quality risk-adjustment method.

all fell by more than 20 percent. The 30-day rate is somewhat more difficult to interpret because it reflects care experienced in post-acute and outpatient settings along with the in-hospital experience.

Adverse events reflect another dimension of quality: patient safety. The rate of adverse events increased for 9 of the 13 measures analyzed from 1998 to 2004; we show results for the 8 most common measures (Table 2A-4). Although these events are rare, often with rates under 100 per 10,000 eligible discharges, collectively they affected approximately 386,000 cases in 2004. The most common adverse event is decubitus ulcer (bed sores), for which the rate increased over the period. The second most common is failure to rescue, which results in death. The rate for this measure decreased over the period, which is consistent with the decline in mortality rates.

Data from the Quality Improvement Organization (QIO) Program on the clinical effectiveness and appropriateness of care in hospitals show improvement for 22 of 25 measures from 2002 to 2004. Two indicators show deterioration, but one of those is inconclusive because of a change in the recommended therapy during that time period. Data limitations prevent comparison for one indicator.

Despite the widespread improvement in these indicators, many beneficiaries still are not receiving clinically indicated services. For example, prophylactic antibiotics are discontinued within 24 hours after surgery less than half the time and patients with acute myocardial infarction receive thrombolytic agents within 30 minutes of hospital arrival less than a third of the time.

Although many measures show improvement, we are concerned about the trend for some measures, particularly the patient safety indicators. None of these measures in and of themselves provide compelling evidence that payments are, or are not, adequate. Instead, the gap between actual and recommended care reflected in the QIO measures for some hospitals and the increase in adverse events indicate that further efforts to improve quality are needed, including linking payment to quality performance. As we discussed in our March 2005 report, the Commission recommends that the Congress establish a quality incentive payment policy for hospitals that participate in Medicare (MedPAC 2005b).

Hospitals' access to capital

Access to capital allows hospitals to maintain and modernize their facilities and capabilities for patient care. If hospitals are unable to access capital, it might in part reflect problems with the adequacy of Medicare payments, as Medicare represents about a third of hospital revenues. Payments from other payers, changes in uncompensated care, management actions concerning the hospital and related businesses, and investors' perception of the regulatory environment (including potential changes in federal and state hospital payment policies) also influence access to capital.

Indicators suggest that access to capital is good

The trend in hospital construction spending suggests that access to capital for the overall sector is good. Hospital construction spending has increased steadily, doubling from 1998 to 2005 (Census Bureau 2005) (Figure 2A-7). Spending on medical office building construction has also increased strongly over this period. Medical office buildings are often located on hospital campuses and if the hospital financed them, rents from the buildings represent future revenue streams for the hospitals. In some cases, a third-party developer finances, builds, and manages the office building. In that case no capital is needed from the hospital, which frees up capital (or borrowing capacity) for acute care needs (Cain Brothers 2005).

The three major bond rating agencies report that the capital spending ratio—the ratio of capital spending to depreciation and amortization—was 1.3 or more in 2004, implying that hospitals may be going beyond merely

replacing worn-out plant and equipment (Moody's Investor Service 2005a, FitchRatings 2005, Standard & Poor's 2005a, b). Tax-exempt municipal bond issuances for hospitals continue to increase from the 2000 level of under $15 billion to more than $25 billion in 2004 and more than $26 billion through October 2005 (Thomson Financial 2005).

Overall, bond ratings in this sector have improved from the previous year. In the Standard & Poor's (S&P) ratings, for example, more credits were upgraded than downgraded in the first half of 2005 for the first time since 1998. The report states: "Many not-for-profit providers are doing exceptionally well, with some matching or exceeding peak levels of performance last seen in the mid-to-late 1990s" (S&P 2005c). Similarly, FitchRatings reports that in the first half of 2005 the amount of upgrades ($3.7 billion) far exceeded that of downgrades ($317 million) (FitchRatings 2005).

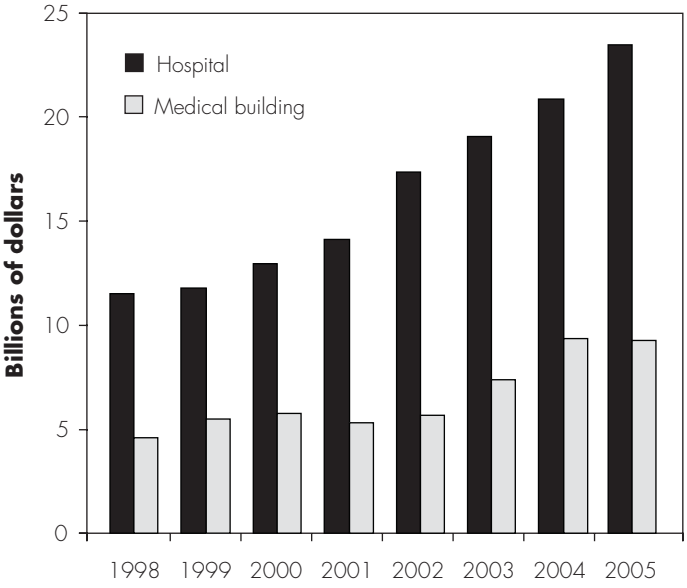
This improvement occurs at the same time that hospitals have been making larger capital investments and borrowing more money. Few ratings have been lowered, implying that hospitals' operating results and the increase in the market value of investments have been sufficient to offset higher debt and preserve key measures the ratings industry uses, such as debt service coverage ratios and days cash on hand. Moody's reports: "Our analysis of 2004 audited performance shows an across-the-board improvement in all key financial ratios, including profitability, debt service coverage, liquidity, and leverage" (Moody's Investor Service 2005a).

Hospitals expect access to capital to remain good

Hospitals plan to continue to add capacity and increase capital spending, implying that they expect to have continued access to capital. A recent survey of nonprofit hospitals found the following (Banc of America 2005):

- Nearly 85 percent of hospitals plan to add capacity over the next two years. Some 60 percent said they intend to add inpatient capacity.
- The mean forecasted increase in 2005 capital spending over the previous year is 14 percent.
- Nearly 93 percent of hospitals reported that access to capital markets is either the same as or better than it was five years ago. Among rural hospitals, 94 percent reported access to be the same or better.

FIGURE 2A–7 **Spending on hospital construction has grown substantially**



Note: Data for 1998 through 2004 are revised. 2005 data are estimated based on seasonally adjusted monthly data through July.

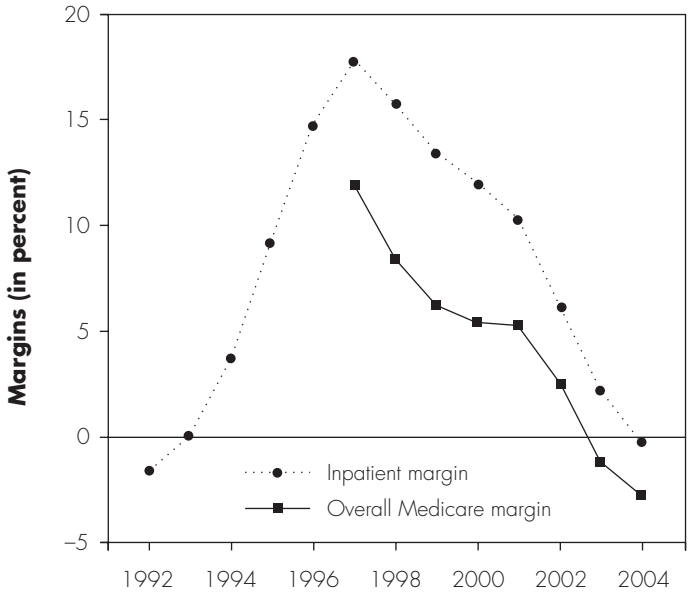
Source: Census Bureau. http://census.gov/C30/private.xls. Accessed September 2005.

Access to capital for nonprofit hospitals is important because these facilities continue to make up the majority of hospitals in Medicare and account for the majority of discharges. About 60 percent of hospitals are nonprofit, and they account for more than 70 percent of Medicare discharges. For-profit and government hospitals make up the remaining 40 percent of hospitals and 30 percent of discharges in roughly equal proportions.

Some believe this substantial increase in building and capacity could result in higher costs for the health care system. The Center for Studying Health System Change (HSC), for example, has reported an ongoing building boom and expansion of both inpatient and outpatient capacity in the 12 health care markets it tracks (HSC 2005). However, much of the added capacity is located in suburban areas and in particular specialties, raising the possibility that health care costs will increase without significantly improving access to services in lower income areas.

FIGURE 2A–8

Overall Medicare and Medicare inpatient margin



Note: A margin is calculated as payments minus costs, divided by payments; margins are based on Medicare-allowable costs. Analysis excludes critical access hospitals. Medicare inpatient margin includes services covered by the acute inpatient prospective payment system. Overall Medicare margin covers acute inpatient, outpatient, hospital-based skilled nursing facility and home health, and inpatient psychiatric and rehabilitation services, plus graduate medical education.

Source: MedPAC analysis of Medicare Cost Report file from CMS.

Improvements may be closing the credit gap

Some in the industry are concerned about a divergence in access to capital between "haves" and "have-nots" and fear that hospitals with weaker credit will languish. However, one agency reports that hospitals throughout the ratings categories had increased access to the capital markets, another states that the disparity in operating performance has declined over the past four years, and a third reports that the credit gap is stabilizing (FitchRatings 2005, Moody's Investor Service 2005a, S&P 2005c). Analysts also point out that hospitals that cannot put money into capital spending may merge or be acquired by a stronger hospital or health system. Although mergers might affect competition within market areas, they would not necessarily imply a decline in access to hospital care for Medicare beneficiaries.

Among the "have-nots" may be those hospitals that are not rated, because hospitals that do not expect a favorable rating might not approach the public tax-exempt market at all. However, those hospitals may have alternative sources of financing—for example, loans from commercial lenders such as banks and private placement of tax-exempt bonds. Hospitals may also lease equipment as an alternative to using capital to purchase equipment outright.

Is access to capital good for for-profit hospitals?

For-profit hospital chains have the advantage of being able to access capital through the equity markets as well as the debt market. Stock prices for the seven largest for-profit chains have all increased over the past year, and the increase for the S&P Health Care Facilities Index is up 20 percent (as of September 2005). One analyst expects investor capital to flow to the sector. HCA, the largest for-profit hospital firm, announced a $2.5 billion stock buyback in October 2005, to be partially financed by debt. This action demonstrates the firm's continued ability to access capital in the debt markets.

Investors in this sector have some of the same concerns as those in the nonprofit sector about bad debt, charity care, and the ability or willingness of payers, particularly Medicaid, to continue to increase payments over the longer term. However, near term they cite Medicare and managed care reimbursement rate increases as revenue growth drivers and increased stability in labor and supply costs. Several rural for-profit chains expect to be making acquisitions, indicating that those chains have good access to capital.

Payments and costs for 2006

In assessing payment adequacy, the Commission considers the estimated relationship between Medicare payments and hospitals' costs in the current year, fiscal year 2006. We assess the adequacy of Medicare payments for

TABLE 2A–5

Hospital Medicare margin, 2001–2004

Measure	2001	2002	2003	2004
Overall Medicare	5.2%	2.2%	–1.4%	–3.0%
Inpatient	10.1	6.1	2.0	–0.3
Outpatient	–7.3	–8.6	–11.7	–10.9

Note: Data are for all hospitals covered by Medicare acute inpatient prospective payment system in 2004. A margin is calculated as payments minus costs, divided by payments; margins are based on Medicare-allowable costs. Overall Medicare margin covers acute inpatient, outpatient, hospital-based skilled nursing facility and home health, and inpatient psychiatric and rehabilitation services, plus graduate medical education.

Source: MedPAC analysis of Medicare Cost Report file from CMS.

TABLE 2A–6 **Overall Medicare margin by hospital group, 2001–2004 and estimated 2006**

Hospital group	2001	2002	2003	2004	2006*
All hospitals	5.2%	2.2%	–1.4%	–3.0%	–2.2%
Urban	6.0	2.9	–0.9	–2.7	–2.0
Rural	–0.5	–2.9	–5.4	–4.6	–4.5
Major teaching	13.7	11.5	7.1	6.0	6.1
Other teaching	4.7	1.7	–1.8	–3.5	–2.4
Nonteaching	0.9	–2.5	–5.8	–7.5	–7.4

Note: Data are for all hospitals covered by the Medicare acute inpatient prospective payment system in 2004. A margin is calculated as payments minus costs, divided by payments; margins are based on Medicare-allowable costs. Overall Medicare margin covers acute inpatient, outpatient, hospital-based skilled nursing facility and home health, and inpatient psychiatric and rehabilitation services, plus graduate medical education.
* 2006 margins are projections that reflect the effects of policy changes (other than updates) to be implemented in 2007. This projection does not reflect the effects of the Deficit Reduction Act of 2005.

Source: MedPAC analysis of Medicare Cost Report file, MedPAR, and impact file from CMS.

the hospital as a whole, and thus our indicator of the relationship between payments and costs is the overall Medicare margin. This margin includes payments and costs for the six largest services that hospitals provide to Medicare patients, plus graduate medical education.[6] We take this approach because hospitals have large amounts of overhead that they allocate across service lines, and particularly between inpatient and outpatient care. Only by combining data for all major services can we estimate Medicare costs without the influence of how overhead costs are allocated.

This section begins by presenting the trend in the overall Medicare margin, including our projection of the margin in fiscal year 2006. Then we delineate the numerous policy changes and recent rate of cost growth that have combined to produce the expected 2006 margin. Next we discuss some of the factors affecting hospitals' cost growth. Finally, we explore the relationship between hospitals' costs and their Medicare financial performance, finding that hospitals with consistently negative Medicare margins have above-average costs and that hospitals with consistently high costs have a substantial negative effect on the industry-wide Medicare margin.

Trend in Medicare margins

The overall Medicare margin has trended downward since 2000, falling to –3.0 percent in 2004 (Figure 2A-8). The decrease has been much larger for acute inpatient services than for outpatient services, primarily because inpatient costs per discharge have risen faster than outpatient costs per service (Table 2A-5). In 2004, a drop in inpatient outlier payments as CMS responded to evidence of previous abuse of the outlier payment system also contributed to the larger decline in the inpatient margin.

We estimate that the overall Medicare margin in 2006—reflecting 2007 payment polices other than updates—will be –2.2 percent (Table 2A-6).[7] A number of policy changes are expected to affect payments for inpatient, outpatient, and hospital-based post-acute services between 2004 and 2007, with some increasing and some decreasing payments. The key factors explaining the modest rise in margin for 2006 are preliminary evidence that the rate of cost growth moderated in 2005 and an expectation that outlier payments will increase. Changes in outlier payments, along with other policy changes affecting hospital payments in recent years, and trends in hospitals' costs are discussed in more detail in the next two subsections.

Several provisions of the Deficit Reduction Act of 2005 affect hospital payments, including those for acute inpatient and outpatient services as well as hospital-based post-acute care. We estimate that in aggregate, these provisions will have a small positive effect on Medicare's payments to hospitals—not enough to change our projection of the 2006 margin. However, two provisions targeting rural hospitals—additional inpatient payments for Medicare-dependent hospitals and extension of outpatient hold-harmless payments for select rural

TABLE 2A–7 **High growth in Medicare inpatient costs per discharge in 2002 moderated somewhat in 2003 and 2004**

Hospital group	2002	2003	2004
All hospitals	7.4%	5.7%	5.7%
Urban	7.3	5.9	5.7
Rural	7.4	4.3	5.8
Major teaching	4.9	5.7	6.0
Other teaching	7.5	6.4	5.1
Nonteaching	8.2	5.3	6.0

Note: The results are adjusted to account for changes in hospitals' case mix (complexity of services provided) as measured by diagnosis related groups. Analysis excludes critical access hospitals.

Source: MedPAC analysis of Medicare Cost Report and claims files from CMS.

facilities—will raise the overall Medicare margin for rural hospitals by 0.7 percentage points.

Policy changes increased some payments and decreased others A number of payment policy changes, including some that are scheduled to be implemented in 2007, affect our projection of the 2006 margin. These changes affect Medicare's payments for inpatient, outpatient, home health, SNF, and rehabilitation services.

Several policy changes increase projected payments. First, the acute inpatient PPS makes extra payments—known as outlier payments—for unusually high cost cases, and changes in the administration of this program are expected to increase payments for 2006. CMS sets a loss threshold prospectively each year designed to make outlier payments equal 5.1 percent of base payments. After implementing reforms in response to evidence that some hospitals abused Medicare's outlier payment system, CMS estimated that inpatient outlier payments fell from 7.8 percent of base payments in 2002 to 3.5 percent in 2004. Our payment projection for 2006 reflects an expectation that CMS will return the outlier share to 5.1 percent in 2006, thus increasing inpatient payments compared with those in 2004. We urge CMS to review its projection methods to ensure that the threshold needed to reach this level is implemented for 2007.

Until the middle of fiscal year 2003, the acute inpatient PPS used separate base rates for hospitals in large urban areas and those in other urban and rural areas. All hospitals have since been paid using a single base rate. The single base rate increased total payments because it raised payments to hospitals in rural and small urban areas without reducing payments to those in large urban areas. Changes to the disproportionate share hospital payment adjustment enacted in the MMA increased inpatient payments to many rural hospitals starting in the middle of 2004.

In certain circumstances, hospitals can qualify for reclassification to a different labor market for purposes of the wage index used to adjust PPS payments for geographic differences in input prices. In addition to the regular process, eligible hospitals were given an opportunity for a one-time reclassification from mid-2004 to mid-2007. This reclassification increases payments for some hospitals, and because the program was not budget neutral, it raises aggregate hospital payments.

Changes in home health outlier policy raised payments beginning in calendar year 2005, and case-mix refinements will increase payments to hospital-based SNFs beginning in fiscal year 2006.

Partially offsetting these payment increases are several policies that decrease payments. Payments for acute inpatient services were reduced by several incremental changes to the indirect medical education adjustment paid to teaching hospitals and by expansion of the post-acute transfer policy in 2006.

Aggregate outpatient payments were expected to decline at the end of 2005 with the expiration of hold-harmless payments, which apply to rural sole community hospitals (SCHs) and other rural hospitals with 100 or fewer beds. The Deficit Reduction Act of 2005, however, will phase in this reduction in payments over three years. The hold-harmless provision pays hospitals the maximum of outpatient PPS payments or the payments they would have received under the system that preceded the outpatient PPS. In addition, outpatient payments were reduced in 2004 by the expiration of transitional corridor payments.

Outpatient payments were initially increased by extra payments for specified covered outpatient drugs (SCODs). The MMA gave these drugs special status and required that they be paid on the basis of average wholesale price in 2004 and 2005, which usually increased the payment rate. Moreover, these additional payments were not subject to budget neutrality, which raised aggregate payments in the outpatient PPS. In 2006, however, the basis of payment for SCODs will be changed to average sales price and

budget neutrality will be reimposed, which will decrease payments.

Elimination of home health payment add-ons in 2005 and SNF add-ons in 2006 reduced payments. Finally, phased implementation of the 75 percent rule, which more clearly defines the types of patients who can be treated in an inpatient rehabilitation setting, had the effect of reducing admissions to hospital-based rehabilitation units beginning in fiscal year 2004 (see Chapter 4D). The Deficit Reduction Act of 2005 will delay the phasing in of the 75 percent rule.

Cost growth has been high for inpatient services and low for outpatient services In addition to changes in payment policy, the other major factor affecting hospitals' overall Medicare margins is change in the growth rates of their unit costs. Medicare costs per discharge for acute inpatient services (adjusted for case-mix change) rose 7.4 percent in 2002, 5.7 percent in 2003, and 5.7 percent in 2004 (Table 2A-7). These rates of increase are all higher than the hospital market basket, which increased an average of 3.9 percent from 2002 through 2004.

In contrast to rapid inpatient cost growth, Medicare outpatient costs per service (adjusted for reported service-mix change) grew by only 0.7 percent in 2003 and 1.0 percent in 2004. At least three reasons could explain why outpatient costs grew more slowly than inpatient costs.

First, outpatient service volume for Medicare patients has increased substantially—over 5 percent in 2004—allowing hospitals to spread fixed costs over more services. Most of this growth is due to a 2.8 percent increase in the number of services patients received on each day they visited the hospital outpatient department. As patients receive more services per trip to the outpatient department, the cost per service should decline. For example, providing a patient with computed tomography (CT) scans of both the pelvis and the abdomen would be expected to cost less than providing that patient a CT of the pelvis during one visit and a CT of the abdomen during a second visit. Because the outpatient unit of analysis is the service and not the hospital visit, providing more units of service per visit reduces costs per unit of service.[8]

Second, hospitals' outpatient service mix for Medicare patients is gradually shifting toward more complex and highly paid services. MedPAC's and CMS's research indicate, however, that outpatient costs may not rise proportionately with the service-mix index (that is, as complexity increases, the average payment per service rises faster than the average cost per service). Third, hospitals may face some pressure to contain outpatient costs due to competition with ambulatory surgery centers, physician offices, and freestanding imaging centers.

If we combine outpatient, inpatient, and hospital-based post-acute services to look at the overall rate of cost growth, we still see cost growth exceeding the increase in the hospital market basket index. Unfortunately, we do not have an all-service measure of costs for Medicare patients alone, but the increase in cost per unit of output across all hospital services and *across all payment sources* was 5.8 percent in 2002, 5.0 percent in 2003, and 4.5 percent in 2004.[9]

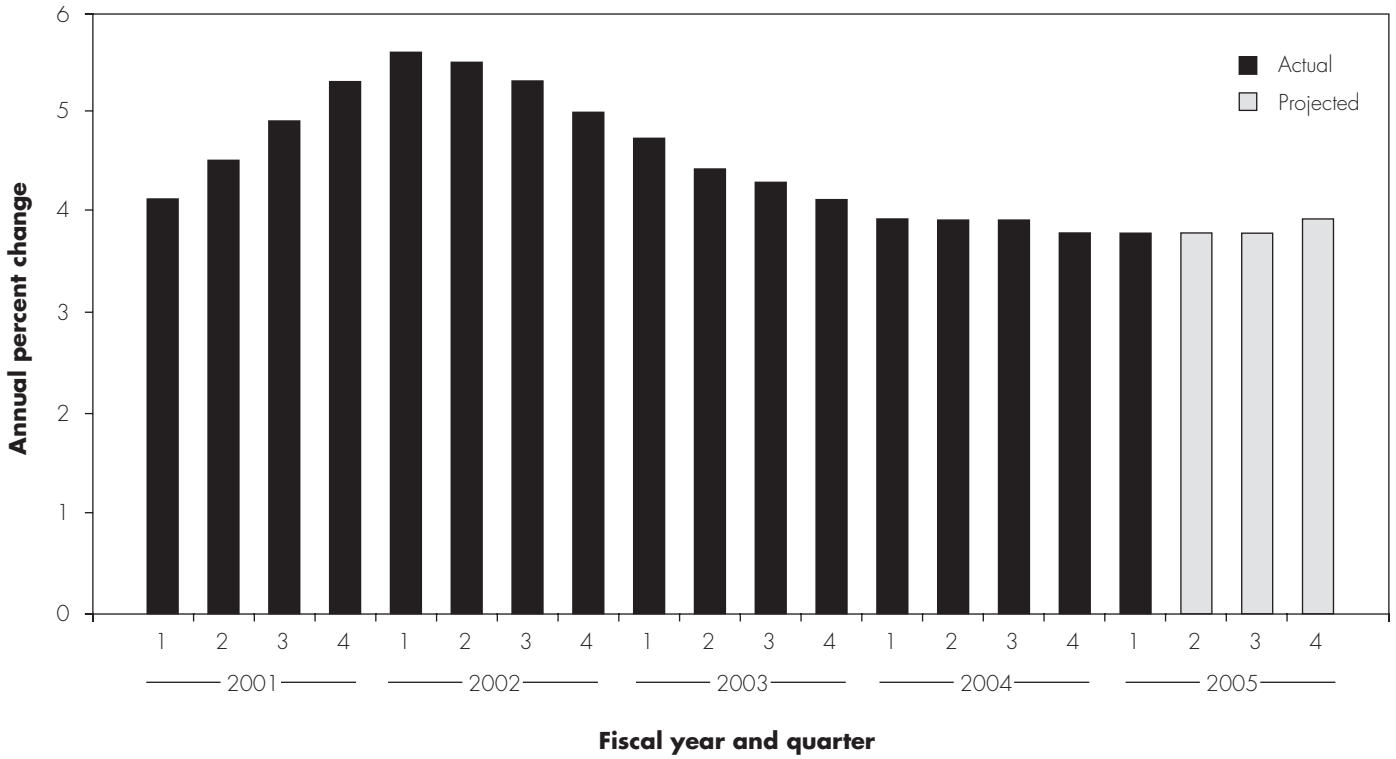
Looking forward to 2005, we examined three sources of cost-growth information. First, a survey of roughly 580 hospitals (sponsored by CMS and MedPAC) indicates that cost per adjusted discharge grew by approximately 4 percent in the year ending June 2005 compared with the same 12-month period a year earlier. Second, the Bureau of Labor Statistics has projected that hospital wages will rise by roughly 4 percent in 2005, continuing the growth rate observed in 2004 (Figure 2A-9, p. 60). Third, a review of financial reports from three large publicly traded hospital systems shows annualized cost growth averaging about 5 percent through the three quarters ending September 2005.

The text box on page 61 discusses changes in the composition of cost growth by cost component over the 2002 to 2004 period.

Factors influencing cost growth In recent years, hospitals have faced pressure to increase expenditures on registered nurses, malpractice insurance, and ancillary services. At the same time, hospitals have not faced significant financial pressure from private payers to constrain cost growth. As a result of these two factors, most hospitals' unit costs have risen rapidly.

In 2001 and 2002, nursing wages rose substantially, which can be attributed to a shortage of registered nurses and pressure on hospital administrators to increase nurse-to-patient staffing ratios (HSC 2003, Needleman et al. 2002). The increases in malpractice premiums were unusually large in 2002 and 2003, and hospitals have also experienced large increases recently in ancillary costs per discharge. Higher ancillary costs could partially reflect orders from physicians for more sophisticated diagnostic testing of patients. These three forces put pressure on hospitals to increase expenditures.

FIGURE 2A–9 **The rate of increase in hospital employee compensation has fallen from its 2002 peak**



Note: Values are four-quarter averages ending in the quarter shown, including wages and benefits.

Source: Global Insights, third quarter 2005 baseline.

As we discussed in our March 2005 Report to Congress, hospital costs appear to be influenced by cycles in private sector profitability. During the first cycle (1986 through 1992), most insurers still paid hospitals on the basis of their charges, and they engaged in little price negotiation or selective contracting. With limited pressure from private payers, hospital margins on private-payer business increased rapidly (Figure 2A-10, p. 62). In the mid-1990s, HMOs and other private insurers began to negotiate much harder with hospitals, and the majority of insurers switched to paying for inpatient services on the basis of DRGs or flat per diems for broad types of services. The payment-to-cost ratio for private payers declined by 2.2 percentage points annually from 1993 through 1999. By 2000 hospitals had regained the upper hand in price negotiations due to hospital consolidations and consumer backlash against managed care.[12] Private payer payment rates rose rapidly and the payment-to-cost ratio for private payers rose by 11 percentage points from 2000 to 2004.

When we examine cost growth during these same three periods, we see that the rate of increase tended to follow trends in private-payer profitability. In the last four years (2001 to 2004), increases in private-payer profitability were accompanied by hospital costs rising at a rate faster than the market basket (Figure 2A-11, p. 62).

The private sector is not the only potential source of financial pressure on hospitals; Medicare payment rates can also influence cost growth (Gaskin and Hadley 1997). In recent years, Medicare inpatient payments have increased at a rate higher than the hospital market basket (reflecting updates equal to the market basket plus a small additional increase due to case-mix change), but payments have not risen fast enough to fully accommodate the rapid increase in hospital costs. By not fully accommodating hospital cost growth, Medicare can place some pressure on hospitals to constrain costs.

Growth in many cost components has slowed

In 2003, hospitals experienced broad-based cost growth, with most components rising faster than the hospital market basket. In 2004, however, cost growth slowed for many of these cost components.[10] A substantial increase in adjusted discharge volume in 2004 of 3.1 percent may have contributed to the slowing in cost growth.

Cost growth slowed in 2004 for many components that experienced rapid growth in 2002 and 2003. The biggest change was for malpractice insurance, which grew only 2.2 percent per adjusted discharge in 2004, down from a 27 percent rate of increase in 2003. Growth in administrative and general costs (excluding malpractice expenses) also fell by more than half, from a 6.8 percent growth rate in 2003 to 3.2 percent in 2004. Cost growth for general routine costs for inpatient care fell from 5.7 percent in 2003 to 3.8 percent in 2004. Cost growth for special care units, which include intensive, cardiac, and burn care, slowed from 5.3 percent in 2003 to 3.1 percent in 2004.

Cost growth for ancillary services, which account for 32 percent of hospitals' costs, also slowed in 2004, but ancillary costs continued to outpace the hospital market basket. In 2004, total ancillary service costs grew 5.0 percent per adjusted discharge compared with 5.8 percent in 2003. The growth in ancillary costs continued to vary by department. For example, costs related to the surgical suite—operating room, anesthesia, and recovery room—increased 5.3 percent per adjusted discharge in 2004, down from 5.9 percent in 2003. Medical supply costs, which account for 5 percent of hospital expenses, grew at 8.2 percent in 2004 compared with 10.6 percent in 2003. The continued rapid growth in medical supply costs may be fueled by growth in the number of devices used per patient and greater use of high cost devices that recently came onto the market, such as drug-eluting stents and implantable cardiac defibrillators. Spending on pharmaceuticals increased 5.7 percent in 2004, the same as in 2003.

Some ancillary departments experienced even more rapid growth in spending. Electrocardiology (EKG) (13 percent) and electroencephalography (15 percent) were the fastest growing departments, with both growing more rapidly in 2004 than in 2003. This increase may reflect more frequent use of these services as intermediate products in delivering inpatient care, in addition to increases in their unit costs (e.g., EKG costs per exam).

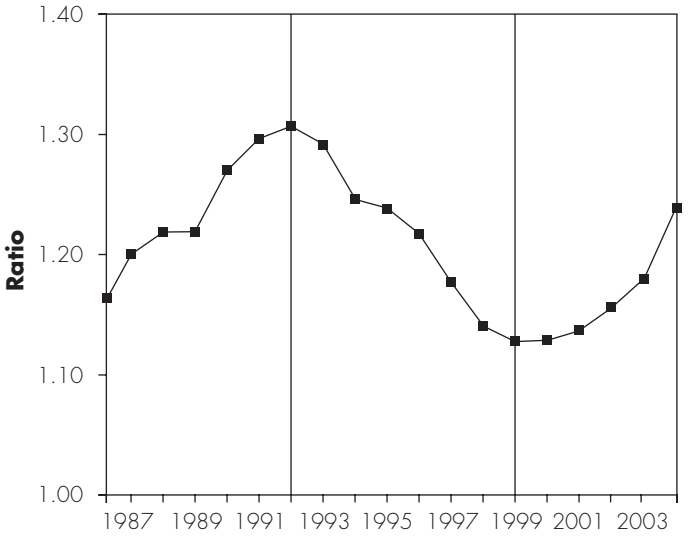
Salaries and benefits paid by hospitals account for 52 percent of expenses and grew by 4.0 percent per adjusted discharge in 2004, down from a 5.2 percent increase in 2003. This growth rate was close to the average for all services and also close to the overall rise in the hospital market basket index. Benefit costs alone, however, continue to increase much faster than other hospital costs, rising by 8.8 percent in 2004. Growth in salary costs alone decreased from 4.3 percent in 2003 to 3.1 percent in 2004. The lower increase may partially reflect an easing of nursing and other employee shortages experienced by hospitals at the beginning of the decade.

Capital costs account for about 8 percent of hospital expenses and grew 0.7 percent per adjusted discharge in 2004, roughly the same rate as the capital market basket.[11] Capital costs tend to change more slowly than other components because of the long time horizon for depreciation of plant and equipment (typically 40 years for plant). The full acquisition costs of capital assets are spread over many years and are not reflected immediately in hospital capital expenses. Lower growth in 2004 is also likely due to hospitals taking advantage of historically low interest rates to finance debt. ■

Hospitals' financial performance and cost growth vary Hospitals' Medicare margins and their rates of cost growth both vary considerably. In this section, we explore the characteristics of hospitals with consistently negative Medicare margins, showing that their poor financial performance is linked to factors over which their managements have considerable influence. Then we show that hospitals with consistently high costs pull down the aggregate Medicare margin for the industry.

FIGURE 2A–10

Three distinct periods in the private payer payment-to-cost ratio



Note: Data include all inpatient, outpatient, and post-acute hospital services.

Source: American Hospital Association annual survey of hospitals.

Hospitals with consistently negative Medicare margins have high costs Hospital financial performance can vary substantially from one year to the next due to a combination of factors affecting hospitals' costs and payment rates. These factors include the types of services offered, changes in the mix and volume of patients seen, and payment policy changes. Because of this variation, a single year margin may not best represent an individual hospital's performance. In this analysis, therefore, we compare the performance of hospitals that have had consistently good or poor financial performance under Medicare over a four-year period, 2001 to 2004. The analysis focuses on the role various cost factors play in explaining provider financial performance.[13]

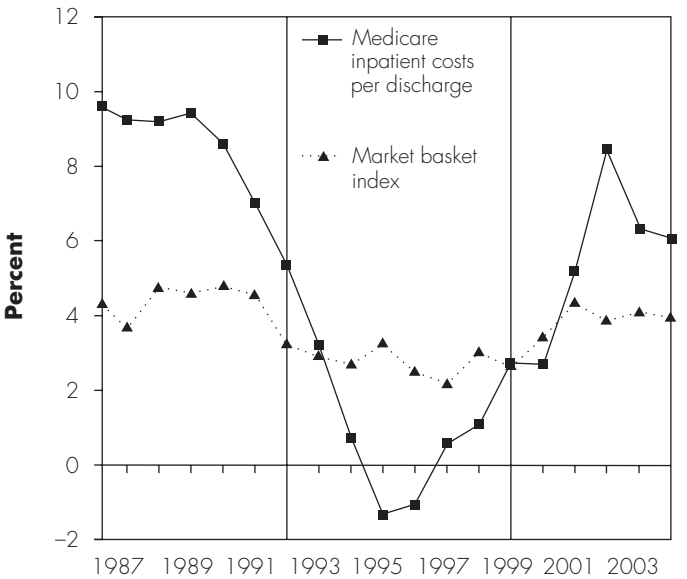
Between 2001 and 2004, about 34 percent of hospitals had consistently negative overall Medicare margins, while 28 percent had consistently positive margins (Table 2A-8). A small subset of hospitals—less than 3 percent—had both negative Medicare and negative total (all payers) margins (not shown in table).

Hospitals with consistently negative Medicare margins tended to show poorer performance on growth in cost per case as well as two key cost-influencing factors—occupancy rate and length of stay—compared with hospitals that consistently perform well under Medicare. The negative margin group had lower occupancy, which should translate into higher unit costs because fixed costs (such as plant and equipment) are spread over fewer units of output. In addition, inpatient length of stay for both Medicare and all payers fell less for the negative margin group compared with the positive margin group over the past decade. The bigger decline in length of stay for the positive margin group should result in slower growth in costs per discharge, as the drop in days of care reduces variable costs like nursing hours and meals.

In addition to examining specific factors that affect costliness, we also compared the costs of hospitals with consistently negative and positive Medicare margins directly, using a measure of Medicare costs per discharge that standardizes for case mix, input prices, and other factors thought to be beyond hospitals' control.[14] Hospitals with negative margins were found to have above-average costs, while those with positive margins had below-average costs. Specifically, the median cost per discharge of the negative margin group was 7 percent above the national median and 19 percent above the median of the positive margin group.

FIGURE 2A–11

Costs have risen faster than the market basket in recent years



Source: MedPAC analysis of Medicare Cost Report file from CMS and CMS's rules for the acute inpatient prospective payment system.

TABLE 2A–8 **Hospitals with consistently negative overall Medicare margins tend to have above-average costs**

Hospital characteristic	Negative Medicare margin hospitals	Positive Medicare margin hospitals	All hospitals
Hospitals in group	986	828	2,923
Share of total	34%	28%	100%
Occupancy rate	52	58	55
Annual change in length of stay (1994–2004)			
Medicare	–2.4	–2.9	–2.6
All payers	–1.2	–1.5	–1.3
Medicare costs per discharge*	$5,428	$4,578	$5,053
Annual change in Medicare costs per discharge (2001–2004)	6.6%	5.6%	6.4%

Note: Values shown are medians for all hospitals with positive or negative margins for four consecutive years, 2001–2004. Data are for 2004 unless otherwise noted.
* Standardized for differences in case mix and severity of illness (using all patient refined diagnosis related groups), outlier cases, wage index, teaching intensity, and disproportionate share of low-income patients.

Source: MedPAC analysis of impact file, MedPAR, and Medicare Cost Report file from CMS.

In addition to higher costs in the absolute, hospitals with consistently negative Medicare margins had larger average annual increases in costs per case—1 percentage point per year more than hospitals with consistently positive Medicare margins—causing the difference in performance between the two groups to grow.

However, the poorer performance of these negative margin hospitals under Medicare has not translated into poorer financial performance when considering all payers and all sources of revenue. Total (all payers) margins for the negative Medicare margin group in 2004 were a full percentage point higher than for the positive margin hospitals. The hospitals with consistently negative Medicare margins may therefore be under less financial pressure to reduce their costs than their Medicare performance alone would suggest.

We also compared hospitals with consistently negative or positive margins with their competitors, defined as hospitals covered by Medicare's acute inpatient PPS that are located within 15 miles. The majority of the hospitals studied had such competitors. The typical positive margin hospital had three PPS competitors, the closest of which was about four miles away, while the typical negative margin hospital had one PPS competitor about nine miles away. Many negative margin hospitals are located in rural areas, and also have critical access hospitals (which are not included in the analysis) within their service areas. If we examine the small group with both negative Medicare margins and negative total margins—which account for less than 3 percent of all hospitals—we find that the typical hospital in this group had three competitors, with the closest about six miles away.

Facilities with negative Medicare and total margins had even lower occupancy rates than those with negative Medicare margins alone (44 percent compared with 52 percent) (Table 2A-9). Standardized costs were lower for this group, however, than for those with only negative Medicare margins ($5,276 compared with $5,428). The lower standardized costs may partially be the result of lower cost growth for this group (a median of 5.3 percent

TABLE 2A–9 **Hospitals with consistently negative Medicare margins have poorer competitive positions in their markets**

Group of hospitals	Occupancy rate 2004	Cost per discharge* 2004
Hospitals with consistently negative Medicare and total margins	44%	$5,276
Competitors within 15 miles	60	5,088
Hospitals with consistently negative Medicare margins only	52	5,428
Competitors within 15 miles	59	5,220
Hospitals with consistently positive Medicare margins	58	4,578
Competitors within 15 miles	60	4,908

Note: Hospitals with mixed performance are excluded from this table. Values shown are medians for all hospitals with consistently positive or negative margins for four consecutive years, 2001–2004.
* Costs per discharge are Medicare costs, standardized for differences in case mix and severity of illness (using all patient refined diagnosis related groups), outlier cases, wage index, teaching intensity, and disproportionate share of low-income patients.

Source: MedPAC analysis of impact file, MedPAR, and Medicare Cost Report file from CMS.

per year compared with 6.4 percent for all hospitals), which suggests that these hospitals may be responding to the added financial pressure of having both negative total and negative Medicare margins.

Both negative margin groups have considerably lower occupancy and higher costs than neighboring facilities, leaving them in a poor competitive position in their market. The groups' standardized costs per case, for instance, are about 4 percent higher relative to their competition. The positive margin hospitals, on the other hand, had close to the same occupancy rates as their competitors, and their costs were about 7 percent lower.

Financial performance under Medicare is influenced by both costs and payments. Higher costs and cost growth are major contributors to differences in financial performance. Of course, various features of the payment system, such as the indirect medical education and Medicare-dependent hospital adjustments, also play a role, but our analysis implies that hospitals have substantial influence over their own financial performance under Medicare.

We also conclude that hospitals with consistently negative Medicare margins generally have a poor competitive stance in their market areas. They are not attracting as many patients, which contributes to higher unit costs and ultimately to lower Medicare margins. However, a negative Medicare margin usually does not mean a negative total margin; in fact, Medicare margins have little relation to total margins (MedPAC 2004). The small subset of hospitals that has both a negative Medicare margin and a negative total margin exhibits the same market problems as those with only negative Medicare margins, but to a greater extent. In the end, they are even less competitive in their market areas.

Hospitals with higher occupancy rates have higher margins Hospital occupancy rates appear to be related to hospitals' financial performance, under Medicare and in total. In general, the higher the occupancy rate, the higher the margin. For example, in 2004 the aggregate overall Medicare margin for hospitals in the bottom quartile of occupancy rate was –7.0 percent compared with 0.0 percent for hospitals in the top quartile. Similarly, the aggregate total (all payers) margin stood at 2.4 percent for hospitals in the bottom quartile of occupancy compared with 4.8 percent for hospitals in the top quartile. This relationship between occupancy and financial performance, however, is only seen clearly for urban hospitals. The picture is mixed for rural hospitals, possibly because of the greater role that outpatient and post-acute care services play in the operation of rural facilities.

Hospitals' occupancy rates have edged upward in recent years, growing from 55 percent in 1997 to 62 percent in 2004. Occupancy in aggregate is higher for urban hospitals (64 percent) than for rural hospitals (48 percent), and also has grown 7 percentage points for urban hospitals compared with 4 percentage points for rural hospitals.[15]

Hospitals with high costs drive down the average margin Hospitals exhibit a wide range of costs per discharge, even after controlling for factors that are largely outside the control of hospital managements. In 2004, for example, the 90th percentile value of standardized Medicare costs per discharge was 46 percent higher than the 10th percentile value.[16] In this analysis, we explore the effect of the level of hospitals' costs on financial performance by comparing the overall Medicare margins of hospitals with consistently high and low standardized costs per discharge.

We defined a hospital as high cost in two ways—by its falling into either the highest quarter or the highest third of all hospitals on our standardized cost per discharge measure in both 2002 and 2004. Focusing on those with high costs in two different years guards against the possibility that either a data problem or some special circumstance (such as being hit by a hurricane) explains the hospital's high costs. These kinds of problems would be unlikely to occur twice, two years apart.

Only 14 percent of hospitals remained in the high-cost quarter of all hospitals in both 2002 and 2004 (Table 2A-10). A substantial share of the high-cost hospitals in 2002—about 40 percent—managed to turn their performance around by 2004. Similarly, 21 percent of hospitals remained in the high-cost third of hospitals in both years. But those whose costs per discharge were at the high end of the distribution in 2002 and in 2004—the consistently high-cost hospitals—had above-average cost increases in the intervening years, such that their ranking in the industry generally worsened.

We found that rural and nonteaching hospitals were more likely than their urban and teaching counterparts to be among the consistently high-cost hospitals. Rural hospitals constitute 32 percent of all hospitals but 39 percent of those in the high-cost quarter in both 2002 and 2004. However, much of this difference is driven by a single subgroup—sole community hospitals—which make up about a third of rural facilities. For acute inpatient services, these hospitals are paid the greater of the prospective

payment rate or their own costs in a base year trended forward. The higher payment that many sole community hospitals have consequently received may have supported higher costs relative to other similar-sized rural facilities.

Hospitals with consistently high costs have a substantial impact on the industry's financial performance under Medicare. Hospitals in the high-cost quarter in 2002 and 2004 had an aggregate overall Medicare margin of –16.6 percent, substantially below the industry-wide figure of –3.0 percent. Those in the low-cost quarter in both years, in contrast, had an aggregate margin of 12.3 percent. As an illustration of the effect of high-cost hospitals, if the 14 percent of hospitals in the high-cost quarter in 2002 and 2004 were omitted from our 2006 forecast of the Medicare margin, the estimate would be more than a percentage point higher, –0.9 percent instead of –2.2 percent. And if the roughly one-fifth of hospitals in the high-cost third in 2002 and 2004 were omitted, the estimate would have been more than 2 percentage points higher, at –0.1 percent. The consistently high-cost hospitals play a major role in the low industry-wide margin, even though they make up less than half of the facilities with negative margins.

TABLE 2A–10

Consistently high-cost hospitals have Medicare margins that are far below average

Cost ranking in both 2002 and 2004	Percent of hospitals	2002 to 2004 annual cost growth	2004 overall Medicare margin
High quarter	14%	6.6%	–16.6%
High third	21	6.7	–15.2
All hospitals	100	6.1	–3.0
Low third	21	5.5	9.7
Low quarter	15	5.7	12.3

Note: Values shown are aggregates for all hospitals that were in the highest or lowest quarter or third of all hospitals, ranked by standardized Medicare costs per discharge, in both 2002 and 2004. Costs were standardized for differences in case mix and patient severity (using all patient refined diagnosis related groups), outlier cases, wage index, teaching intensity, and disproportionate share of low-income patients.

Source: MedPAC analysis of impact file, MedPAR, and Medicare cost report file from CMS.

How should Medicare payments change in 2007?

When we consider whether Medicare's aggregate payments are adequate, we look at the six largest hospital service lines—inpatient, outpatient, rehabilitation, home health, psychiatric, and SNF. In this section, we make update recommendations for services covered by Medicare's inpatient operating PPS and for those covered by the outpatient PPS.[17]

For the inpatient PPS, the update in current law for fiscal year 2007 is the forecasted increase in the hospital market basket index. For 2005 to 2007, current law requires CMS to reduce inpatient PPS payments by 0.4 percent for hospitals that fail to provide data to CMS on specified quality indicators. For the outpatient PPS, current law provides an update equal to the forecasted increase in the market basket for calendar year 2007.

Changes in input prices

CMS measures price inflation for the goods and services that hospitals use in producing inpatient and outpatient services with the hospital operating market basket index. CMS's latest forecast of this index for fiscal year 2007 is 3.4 percent, but it will update the forecast twice before using it to update payments in 2007.

Technology

Technological advances may lower or raise the costs hospitals incur in providing care to Medicare beneficiaries. Hospitals facing fixed payment rates have a strong financial incentive to adopt new technologies that lower costs while maintaining or improving the quality of care. Adopting these technologies should improve productivity. By the same reasoning, providers have a financial disincentive to adopt new technologies that increase costs even if they improve quality—although competitive pressures may lessen that disincentive, as would a quality pay-for-performance program. Mechanisms in the inpatient and outpatient payment systems for making additional payments for new technologies also offset the disincentive.

Inpatient technology payments

Since fiscal year 2003, new technology pass-through payments have supplemented the base DRG payment rates in the acute inpatient PPS. In 2003 and 2004, these payments were made on a budget-neutral basis, but the MMA removed the budget-neutrality constraint starting in 2005. The revised mechanism provides a direct funding source for cost-increasing technologies—one

that improves hospitals' accountability by providing extra funds only when a new technology is in place and actually used in treating patients. Consequently, we do not include a technology allowance in the update for the acute inpatient PPS.

While new technology add-on payments address new technologies in patient care, they do not provide funding for investment in information technology (IT). Many hospitals are already investing in clinical IT. Moody's estimates that investments in clinical and other IT account for from 15 percent to 20 percent of hospitals' capital expenditures, and the share is growing (Moody's Investor Service 2005b). Moreover, clinical information systems are the top-ranked capital spending priority for nonprofit hospitals, according to a recent survey (Banc of America 2005).

Information technology has the potential to improve quality of patient care, and we have recommended that the Congress direct CMS to include measures of functions supported by the use of IT in pay-for-performance measures (MedPAC 2005b). Pay for performance will help give providers the business case to adopt IT and reap rewards from payments for the quality improvements that flow from better clinical information. Paying through a pay-for-performance program rather than an update will also more precisely target any additional payments to hospitals that install quality-improving IT systems.

Outpatient technology payments

The Commission does not adjust the outpatient payment update for cost-increasing, quality-enhancing new technology because the outpatient PPS has two mechanisms to account for new technology directly.

One mechanism is new technology ambulatory payment classifications, which cover completely new services for which CMS does not yet have adequate data to establish payment rates. CMS places such services in new technology APCs on the basis of their expected costs. The services covered under new technology APCs generate payments for each service rendered, resulting in an increase in total Medicare expenditures for outpatient care. Consequently, the costs of new technology APCs are reflected in the payment system and do not need to be factored into the update. New technology APCs accounted for about 1.1 percent of outpatient PPS spending—about $260 million—in 2004.

The second mechanism is pass-through payments for new inputs to a service, such as drugs or medical devices. Pass-through payments are added to the base APC payment for the applicable service; these payments are budget neutral.

Productivity

One of the Commission's key policy principles is that Medicare's payment systems should encourage efficiency. Hospitals and other health care providers should be able to reduce the quantity of inputs required to produce a unit of service by at least a modest amount each year while maintaining service quality.

The Commission includes a productivity improvement target in its framework for updating payments to provide a mechanism for encouraging efficiency. Payment rates for health care providers should be set so that the federal government benefits from providers' productivity gains, just as private purchasers of goods in competitive markets benefit from the productivity gains of their suppliers. Market competition constantly demands improved productivity and reduced costs from other firms; as a prudent purchaser Medicare should also require some productivity gains each year from its providers.

The Commission's approach links the target for efficiency improvement to the gains achieved by firms and workers who pay the taxes and premiums that fund Medicare benefits. Our target is set equal to the Bureau of Labor Statistics' estimate of the 10-year average growth rate of multifactor productivity in the general economy, which is currently 0.9 percent. When included in our update recommendation, the 0.9 percent is a policy objective, not an empirical estimate. To the extent that hospitals fail to achieve our productivity target in a given year, the causes and consequences are considered in our analysis of payment adequacy in following years.

Pay for performance

The Commission has concluded that Medicare should take the lead in developing incentives for high-quality care. To that end, our March 2005 report recommended that the Congress establish a quality incentive payment policy under Medicare for hospitals (MedPAC 2005b). A number of accepted quality measures are available—including process measures, measures of safe practices, and mortality measures. These measures would enable CMS to implement the program fairly quickly and then to enhance and expand the set of measures in future years.

Pay for performance would result in a larger share of payments going to hospitals that achieve high quality scores or improve their quality substantially from one year to the next. We suggest that the pool of money to support hospital pay for performance be set initially at 1 to 2 percent of aggregate payments. Medicare would be providing many high-quality hospitals with a net increase in payment higher than the update alone, providing a strong incentive to improve quality. Our recommended update and the pay-for-performance program would replace the provision in current law that reduces a hospital's payments by 0.4 percent if it fails to report required quality data to CMS.

Update recommendations

This section presents our update recommendation covering acute inpatient and outpatient payments, along with a summary of our rationale and the implications of the recommendation.

RECOMMENDATION 2A

The Congress should increase payment rates for the acute inpatient and outpatient prospective payment systems in 2007 by the projected increase in the hospital market basket index less half of the Commission's expectation for productivity growth.

RATIONALE 2A

Our assessments of beneficiaries' access to care, service volume growth, and access to capital are positive, while the results on quality are mixed. However, hospitals' average margins under Medicare have fallen. A key factor in the decline in margins through 2004 was unusually rapid cost growth. To some extent, this growth reflects unusual cost pressures, but the lack of financial pressure to constrain costs also contributed. In addition, hospitals with consistently high costs helped pull down the industry-wide margin—those hospitals may not be efficient providers. Balancing these considerations, we conclude that an update of market basket minus half of expected productivity growth (or 0.45 percent) is appropriate for both inpatient and outpatient services. The inpatient update would apply to fiscal year 2007 and the outpatient update to calendar year 2007.

IMPLICATIONS 2A

Spending

- This recommendation would decrease federal program spending relative to current law. Inpatient payments would decline by $200 million to $600 million in the first year and by $1 billion to $5 billion over five years. Outpatient payments would fall by $50 million to $200 million the first year and by less than $1 billion over five years.

Beneficiary and provider

- This recommendation should have no impact on beneficiary access to care and is not expected to affect providers' willingness and ability to provide care to Medicare beneficiaries.

Outpatient hold-harmless payments

The discrepancy in financial performance between urban and rural hospitals in hospital outpatient departments has been fairly small since the outpatient PPS began in August 2000. In general, rural hospitals have performed a little worse than urban hospitals. The gap between urban and rural providers has been reduced by "hold-harmless" payments.

Hold-harmless payments target sole community hospitals located in rural areas and other rural hospitals with fewer than 100 beds (small, rural non-SCHs). To determine a hospital's hold-harmless payments, CMS first estimates for a given year the amount it would have paid a hospital under the payment system that preceded the outpatient PPS. This amount is the product of the hospital's costs incurred from furnishing outpatient services and a payment-to-cost ratio from 1996. Qualifying hospitals receive the greater of the estimated payments from the previous system or the actual outpatient PPS payments.

We projected that in the absence of hold-harmless payments, the financial performance of rural hospitals would decline substantially relative to urban hospitals (MedPAC 2005b). The problem that had been facing rural hospitals is that hold-harmless payments expired at the end of 2005. Among rural beneficiaries, this could adversely affect access to services furnished in hospital outpatient departments.

However, CMS and the Congress have both developed policy changes that will strongly mitigate the effect that

Estimating the relation between outpatient cost per service and volume of services

We used regression analysis to estimate the relationship between hospital cost per service under the outpatient prospective payment system (PPS) and total volume of outpatient services. In theory, cost per service should decline as the number of services increases.

The unit of observation in our regression is the hospital. The dependent variable is hospitals' costs per outpatient PPS service, adjusted for geographic differences in the cost of inputs.[18] We measured input costs with the hospital wage indexes that CMS uses to adjust outpatient PPS payments for geographic differences. The explanatory variables include volume of outpatient services furnished to all patients (not just Medicare beneficiaries),[19] a service-mix index that measures the complexity of services provided by hospitals, and a number of 0/1 variables that reflect hospital characteristics that could affect costs in the outpatient department.[20] We used natural logarithms of the dependent variable, volume of outpatient services, and the service-mix index. All data in our analysis are from 2003 claims, Cost Report, or Provider of Services files.[21]

Graphical analysis shows that the relation between cost per outpatient service and volume of services is nonlinear. Cost per outpatient service decreases at a faster rate at low-volume levels than at high-volume levels. Natural log transformations often create a linear relationship when the relation between untransformed variables is nonlinear. We examined natural log versions of cost per service and volume and found the relation is still nonlinear. In response, we used a spline function on the log-transformed variables. The spline function groups hospitals by volume of services and estimates a distinct relation between cost per service and volume for each group. We chose the spline function because it fits the data reasonably well and is easier to apply as a payment policy tool than alternatives such as a quadratic function. Our spline function collects hospitals into these three groups:

- fewer than 50,000 outpatient services;
- at least 50,000 services but fewer than 150,000 services; and
- at least 150,000 services.

TABLE 2A–11 **Cost per outpatient service declines as outpatient volume increases**

Variable	Coefficient	t-statistic
Constant	6.026	29.57
Volume (<50k)	–.162*	–8.23
Volume (50k–150k)	–.106*	–6.54
Volume (>150k)	–.003	–0.28
Service mix	.835*	54.75
OP Surgery in hospital	.024	1.56
Government hospital	.002	0.18
For-profit hospital	–.082*	–5.37
Residents per discharge equivalent		
Second quintile	.025	0.98
Third quintile	.125*	4.84
Fourth quintile	.078*	3.68
Fifth quintile	.056*	2.37
Occupancy rate		
Second quintile	–.019	–1.24
Third quintile	–.003	–0.20
Fourth quintile	–.014	–0.83
Fifth quintile	–.006	–0.33
Percent of OP services in ER		
Second quintile	.019	1.38
Third quintile	.009	0.59
Fourth quintile	.007	0.38
Fifth quintile	–.046*	–2.24
Market share		
Second quintile	–.008	–0.57
Third quintile	.011	0.77
Fourth quintile	.016	1.10
Fifth quintile	.010	0.63
Percent of inpatient days that are Medicaid		
Second quintile	.002	0.16
Third quintile	–.012	–0.93
Fourth quintile	–.006	–0.45
Fifth quintile	–.010	–0.64

Note: OP (outpatient), ER (emergency room). R-squared=.68. N=3,013. The dependent variable is costs per service under the outpatient prospective payment system, adjusted for geographic differences in cost of inputs. The dependent variable, volume, and service mix are natural logarithms. All other variables are 0/1 dummy variables. Discharge equivalent = Discharges + (outpatient charges) / ((inpatient charges)/discharges)). For residents per discharge equivalent, occupancy rate, percent of outpatient services that are ER services, market share, and percent of inpatient days that are Medicaid beneficiaries, we divided hospitals into quintiles. For each of these variables, we used the first quintile as the point of comparison. *Indicates significant at 5 percent level.

Source: MedPAC analysis of data from 2002 and 2003 outpatient claims, 2003 Medicare Cost Report file, and 2003 Provider of Services file from CMS.

Estimating the relation between outpatient cost per service and volume of services

(continued from previous page)

For each group, we estimated the relation between volume and cost per service.

Results from our regression analysis verify our graphical analysis: Cost per service declines at a faster rate among low-volume hospitals than among high-volume hospitals (Table 2A-11). Among hospitals that provide fewer than 50,000 services, a 10 percent increase in volume results in a 1.6 percent decrease in cost per service. Among hospitals that provide at least 50,000 services but fewer than 150,000 services, a 10 percent increase in volume results in a 1.1 percent decrease in cost per service. Finally, among hospitals that provide at least 150,000 services, the decrease in cost per service caused by increases in volume is not statistically different from zero. ■

losing hold-harmless payments has on the financial performance of rural hospitals under the outpatient PPS. In response to a mandate in the MMA, CMS developed a policy that will increase by 7.1 percent the payment for each outpatient PPS service furnished by rural SCHs, excluding separately paid drugs (CMS 2005). CMS began using this policy at the start of 2006. In addition, the Deficit Reduction Act of 2005 provides for rural hospitals (other than SCHs) that have 100 or fewer beds to receive nearly full hold-harmless payments from 2006 through 2008. These hospitals will receive 95 percent of their full hold-harmless payments in 2006, 90 percent in 2007, and 85 percent in 2008.

An issue to consider about these policy changes is that neither the rural SCH adjustment nor hold-harmless payments were developed with attention to the factors underlying the poor performance of rural hospitals under the outpatient PPS. Consequently, these policies may not always target the appropriate hospitals—such as those facing difficult financial circumstances due to factors beyond their control.

To develop a targeted policy for addressing the relatively poor financial performance of rural hospitals, we need to identify the factors underlying the poor performance. We should consider each factor individually to determine whether it is appropriate to address it through a change in the Medicare program and what the policy change should be. For example, if hospitals have poor financial performance because of poor management, no additional payments through the Medicare program are warranted. In contrast, if hospitals have poor financial performance because of a factor beyond their control, additional Medicare payments may be appropriate.

Also, additional Medicare payments should be targeted to hospitals that are important to ensuring beneficiaries' access to hospital outpatient services. Targeting these hospitals helps prevent excess capacity and prevents making additional payments to hospitals that are in difficult circumstances because of poor performance in relation to nearby hospitals. A straightforward method for identifying hospitals that are important to beneficiaries' access to outpatient services is requiring a hospital to be at least a minimum distance from any other hospital in order to qualify for assistance.

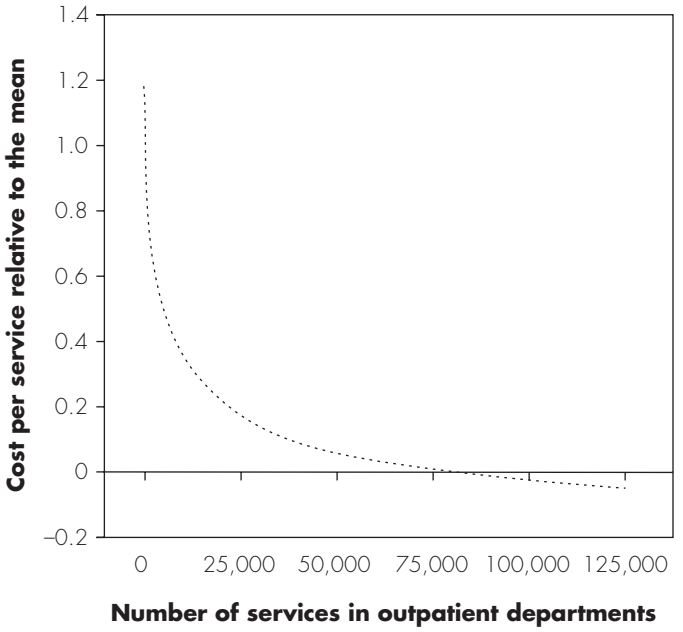
Our data analysis identifies two factors that contribute to the poor outpatient performance of rural hospitals in the absence of special payment provisions. One factor is high costs per service caused by low outpatient volume. Economic theory asserts that low-volume hospitals will have high costs per service because they cannot take advantage of economies of scale. As costs per service increase, financial performance generally declines. We have two findings that suggest that the financial performance of rural hospitals is adversely affected by low volume:

- Cost per service tends to be higher among low-volume hospitals, where volume is measured by number of services provided.
- Rural hospitals are much more likely to be low volume than urban hospitals.

The second factor that may affect the financial performance of rural hospitals is that they tend to have a different mix of services than urban hospitals; on average they provide more basic services that require fewer resources. Results from analyses by MedPAC (Table 2A-11) and CMS (CMS 2005) suggest that under

FIGURE 2A–12

Cost per service in outpatient departments declines as volume of services increases



Note: Number of services reflects services provided to all patients, not just Medicare beneficiaries.

Source: MedPAC analysis of 2002 and 2003 outpatient claims files, 2003 Medicare Cost Report file, and 2003 Provider of Services file from CMS.

the outpatient PPS, the payment-to-cost ratio is lower for low-resource services than for more complex ones. However, these results are not definitive proof that rural hospitals are disadvantaged because we do not know if the payment-to-cost ratio is low for the specific services that rural hospitals provide. To be certain, we must compare the payments and costs of individual services.

In the sections below, we discuss these issues—the effect of low volume on costs per service and the difference in service mix between urban and rural hospitals—in more detail. In addition, we discuss possible changes to the outpatient PPS for addressing them.

Rural hospitals may be high cost because of low volume

We found that rural hospitals, on average, have higher cost per service, after adjusting costs for differences in input prices and service mix. In 2003, adjusted cost per service averaged $62 for all hospitals, $66 for rural hospitals, and $60 for urban hospitals. In this section, we explore the possibility that low service volume contributes to the high costs among rural hospitals.

We used regression analysis to determine the correlation between a hospital's volume and cost per service under the outpatient PPS (the text box on page 68 provides details on the method). Our regression results confirm that cost per service declines as hospital volume increases. Also, the rate of decrease is greater at low-volume levels than at high-volume levels.

We used our results to illustrate how cost per service declines as volume increases (Figure 2A-12). Hospitals with the lowest volume have cost per service much higher than the mean, which occurs at about 78,000 services per year. Hospitals providing more than 78,000 services have cost per service below the mean. In 2003, 32 percent of hospitals provided fewer than 78,000 services. We refer to these as "low-volume hospitals."

Rural hospitals represent a disproportionate share of low-volume hospitals. In 2003, they comprised 64 percent of the hospitals below the 78,000-service threshold, but they were only 37 percent of all hospitals. Also, 55 percent of rural hospitals were low volume, compared with 32 percent of all hospitals.

A low-volume adjustment as a policy alternative

The outpatient PPS does not adjust payments on the basis of hospital volume, placing low-volume hospitals at greater financial risk. To the extent that low-volume hospitals are geographically isolated, they play an important role in maintaining beneficiaries' access to hospital outpatient care such as emergency room services, outpatient procedures, imaging services, and diagnostic tests. Therefore, adjusting the outpatient PPS to address the greater financial risk faced by isolated, low-volume hospitals may be important.

We believe the most targeted policy for addressing this issue is a low-volume adjustment that augments outpatient PPS payments to reflect the higher costs per service among low-volume hospitals. If Medicare were to use a low-volume adjustment, it should include a distance requirement so that hospitals qualify only if they are at least a minimum number of miles from any other hospital that offers hospital outpatient services. This would target hospitals that are important to beneficiaries' access to hospital outpatient services. It would help prevent making additional payments to hospitals that have low service volumes because patients find them unattractive and help prevent excess capacity (see text box for an illustrative example of a low-volume adjustment).

Effects of a low-volume adjustment with a distance requirement

We used results from our regression analysis in a strictly illustrative example to examine the financial effects of a policy that would increase payments for low-volume hospitals that qualify under a 15-mile distance requirement.[22] Outpatient prospective payment system (PPS) payments increase by 67 percent for a hospital that furnishes about 1,400 services, the smallest hospital in our sample that meets the distance requirement. The rates of increase become smaller as outpatient volume increases, until reaching zero for hospitals that provide more than 78,000 services.[23]

The low-volume adjustment used in this illustration would increase total outpatient PPS spending by about 0.2 percent and would increase outpatient PPS payments by 6.7 percent for the low-volume hospitals that qualify. On average, rural hospitals would benefit much more than urban hospitals.

Forty-one percent of rural hospitals would qualify for an adjustment, and outpatient PPS spending among rural hospitals would increase by 1.1 percent. In contrast, only 4 percent of urban hospitals would qualify, and outpatient PPS payments among urban hospitals would increase by 0.4 percent. ■

In addition to a distance requirement, a low-volume adjustment should have two other features. First, the service volume used as the basis for adjustment should be the average number of services a hospital provides over several years. Using several years of data avoids problems of annual variation in volume. Second, the adjustment should be based on the volume of services provided to all patients—not just Medicare beneficiaries—because a hospital's cost per service in the outpatient PPS is affected by the volume of services provided to all patients.

The magnitude of the distance requirement can have a substantial effect on the number of hospitals that qualify for a low-volume adjustment and on outpatient PPS spending. The distance requirement should not be so high that it is overly restrictive, excluding hospitals that are vital to beneficiaries' access to hospital outpatient services. Conversely, it should not be so lenient that additional payments are directed to hospitals that are not essential for maintaining access to care.

We examined two possible distance requirement thresholds—15 and 25 miles—to illustrate the effect of different distance requirements on the number of hospitals that would qualify for a low-volume adjustment. Fifty-two percent of low-volume hospitals would qualify under a 15-mile distance requirement, and 15 percent would qualify under a 25-mile requirement.[24]

A final issue is whether alternative ambulatory care settings should be included in the context of the distance requirement. For example, if the distance requirement is 15 miles, should other types of ambulatory providers, as well as other hospitals, be considered within that radius? An argument for including other types of providers is that they will furnish many of the same services offered in hospital outpatient departments, and they may be better suited to handling some case types. However, we should ensure reasonable access to emergency care in all areas.

Rural hospitals have a different service mix

In addition to being different from urban hospitals in terms of volume, rural hospitals tend to provide a different service mix. Our analysis indicates that rural hospitals provide a less resource-intensive—and generally less complex—service mix.

If the payment-to-cost ratio is stable across services, then any difference in service mix between rural and urban hospitals should not contribute to the relatively poor financial performance of rural hospitals under the outpatient PPS. But, if the payment-to-cost ratio is lower for the services more heavily provided by rural hospitals, they would be at a competitive disadvantage.

Regression analyses by MedPAC and CMS (CMS 2005) indicate that the payment-to-cost ratio may be lower for less resource-intensive services (Table 2A-11, p. 68). These regression results coupled with our finding that rural hospitals tend to furnish less resource-intensive services suggest that rural hospitals may be disadvantaged.

They also suggest that the outpatient PPS may need to be recalibrated so that payments more accurately match costs of individual services. However, these results are not definitive proof of a problem. We need to understand which services have lower payment-to-cost ratios in relation to other services.

We have begun work that will allow us to compare the payments and costs for individual services in the outpatient PPS. We are using claims data as the basis for our analysis and have consulted with representatives from CMS to improve our analysis. ■

Endnotes

1 Hospitals covered by the acute inpatient PPS now account for about 3,500 of the approximately 5,000 short-term hospitals. They do not include 1,217 critical access hospitals and others paid under other prospective payment systems.

Most services provided in hospital outpatient departments are now covered by the outpatient PPS, including clinic and emergency room visits, procedures, imaging, and most ancillary services. Outpatient services not covered by the PPS include: (1) those paid on a separate fee schedule (such as clinical laboratory, ambulance, rehabilitation and other therapies, and durable medical equipment), and (2) those reimbursed on a cost basis (such as organ acquisition and, beginning in 2003, some vaccines). In 2004, spending under the outpatient PPS represented 91 percent of all outpatient spending, excluding clinical laboratory services. We exclude clinical laboratory services in this calculation because the laboratory claims data include non-hospital-based as well as hospital-based services.

2 The Commission has prepared a description of each of Medicare's 16 prospective payment systems, known as "Medicare payment basics." These briefs, including descriptions of the acute inpatient, outpatient, and critical access hospital payment systems, can be found on our website (www.medpac.gov) under "Research Areas."

3 This survey is cosponsored by CMS and MedPAC, and is conducted under contract by the American Hospital Association and The Lewin Group.

4 A service in our volume measure is identified by a Healthcare Common Procedure Coding System (HCPCS) code that is payable under the outpatient PPS. HCPCS definitions can change over time, which can have some effect on annual volume changes.

5 We exclude separately paid drugs because their definition versus those that CMS packages with a primary service has been unstable over our period of analysis. We exclude pass-through devices because the list of devices that have pass-through status has changed substantially throughout our period of analysis.

6 A margin is calculated as the difference between payments and costs divided by payments. The services included in the overall Medicare margin are acute inpatient, outpatient, skilled nursing facility, home health care, inpatient psychiatric, and inpatient rehabilitation.

7 Our forecast is for 2006, but we considered the policy environment hospitals will be operating under in 2007 as we deliberated the appropriate update for that year. Therefore, the forecast reflects what payments would have been in 2006 if 2007 policy (other than the 2007 update) had been in effect at the time.

8 This contrasts with the case of inpatient care, where the unit of service is the admission. In that case, providing more services to the patient will result in an increase in the costs per unit of service.

9 This measure is known as costs per adjusted discharge. Adjusted discharges are calculated as number of discharges times the ratio of total charges to inpatient charges. The data for this analysis are from Medicare cost reports.

10 Although this analysis uses a cost measure encompassing all payers, cost elements and services that would not be reimbursable under Medicare payment principles (such as research, gift shops, and medical office buildings) are excluded from the measure. Adjusted discharge is an output measure encompassing inpatient as well as outpatient and post-acute services.

11 In addition to depreciation and interest, capital expenses include lease and rental expenses for facilities and equipment, as well as taxes, insurance, license, and royalty fees on depreciable assets.

12 Some argue that low hospital occupancy rates made it easier for private payers to negotiate lower payment rates during the 1990s, and that somewhat higher occupancy rates since 2000 have made it more difficult for payers to apply pressure. See the discussion of hospital occupancy later in the chapter.

13 The analysis examines hospital margins data from 2001 through 2004, using Medicare cost reports. Hospitals included in the analysis had complete Medicare and total (all payer) margin data in all four years and had not converted to CAH status as of August 30, 2005. More than 80 percent of inpatient PPS hospitals are included in the analysis. In order to be identified as consistently negative (or positive), a hospital had to have negative (or positive) margins in all four years of the analysis.

14 The analysis standardizes costs for case mix and severity of illness (using all patient refined diagnosis related groups, or APR–DRGs), outlier cases, the area wage index, teaching intensity, and disproportionate share of low-income patients. The standardization factors used for all of these components except case mix are based on the results of a regression analysis.

15 We generally would expect hospitals with fewer beds to have lower occupancy rates in order to maintain similar waiting times for bed availability and to handle surge capacity.

16 This analysis standardizes costs for the same factors as in our analysis of negative margin hospitals. In addition, hospitals' interest expense was removed from the measure of costs.

17 The Congress sets the updates for payment rates under the inpatient operating PPS and the outpatient PPS. The update for the inpatient capital PPS is not specified by law; rather, it is set annually by CMS.

18 We estimated hospital costs per outpatient PPS service as the costs hospitals incur in furnishing outpatient PPS services divided by the number of outpatient PPS services. We obtained the costs from hospital cost reports and the number of services from outpatient claims files.

19 We estimated volume of services furnished to all patients using Medicare outpatient volume from the 2003 claims files and outpatient charges for Medicare and all patients from the 2003 Medicare cost report file. The formula is: (total outpatient volume) = (Medicare outpatient volume) * (total outpatient charges)/(Medicare outpatient charges).

20 Hospital characteristics include whether the hospital provides outpatient surgery, whether it is a government or for-profit hospital, the number of residents per discharge, the occupancy rate, the percentage of services that are emergency room visits, the percentage of discharges that are Medicaid patients, and the hospital's market share.

21 We also considered the effect that hospital volume for inpatient services could have on outpatient costs per service because inpatient and outpatient services often use the same inputs. We attempted to use "discharge equivalents" to capture the inpatient effect, which is defined as (inpatient discharges) + (total outpatient charges)/((total inpatient charges)/(inpatient discharges)). However, we found a strong correlation between outpatient volume and discharge equivalents, which affected our regression results. Therefore, we excluded discharge equivalents from our final regression model.

22 A low-volume adjustment for the outpatient PPS should have little effect on hospitals' incentive to become more efficient through economies of scale because Medicare accounts for only about 20 percent of hospitals' outpatient business. Even under a low-volume adjustment that fully accounts for the effects that volume differences have on hospital costs, hospitals that expand their volume would still gain about 80 percent of the benefit from scale economies.

23 We arrived at these adjustment percentages using the following method. Hospitals with more than 78,000 services get no adjustment. For hospitals with fewer than 78,000 services but more than 50,000 services, the adjustment increases by 1.1 percentage points for each 10 percent decrease in service volume. For hospitals with fewer than 50,000 services, the adjustment increases by 1.6 percentage points for each 10 percent decrease in service volume.

24 In general, our analysis excluded critical access hospitals (CAHs) because those hospitals are exempt from the outpatient PPS. However, we included CAHs when we considered whether a low-volume hospital qualified under a distance requirement. For example, if a low-volume hospital has one hospital within 15 miles and that other hospital is a CAH, the low-volume hospital would not qualify for a low-volume adjustment under a 15-mile distance requirement. We included CAHs in this context because most CAHs (95 percent) furnish outpatient services, so we view them as viable options for hospital outpatient care.

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